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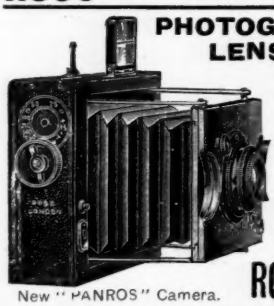

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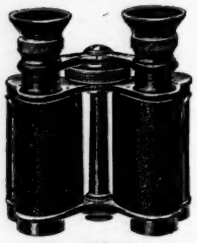

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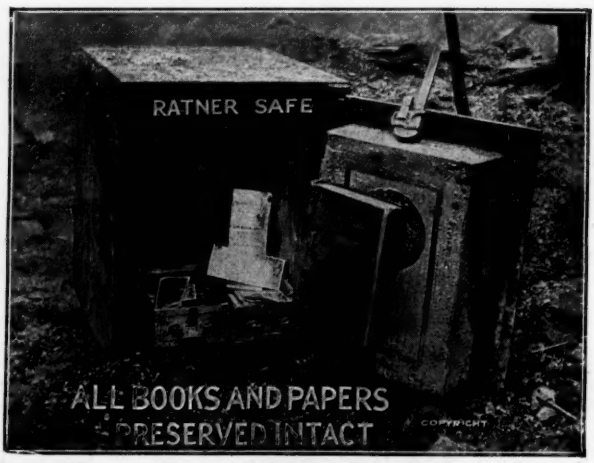

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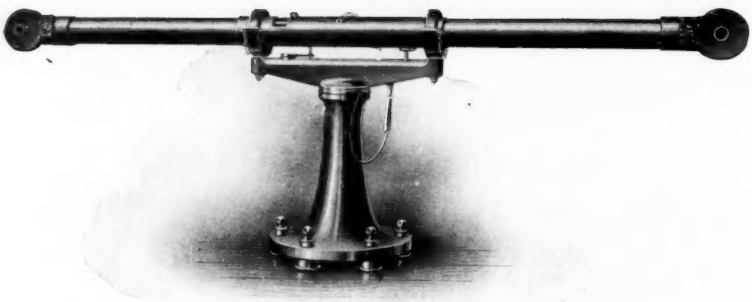

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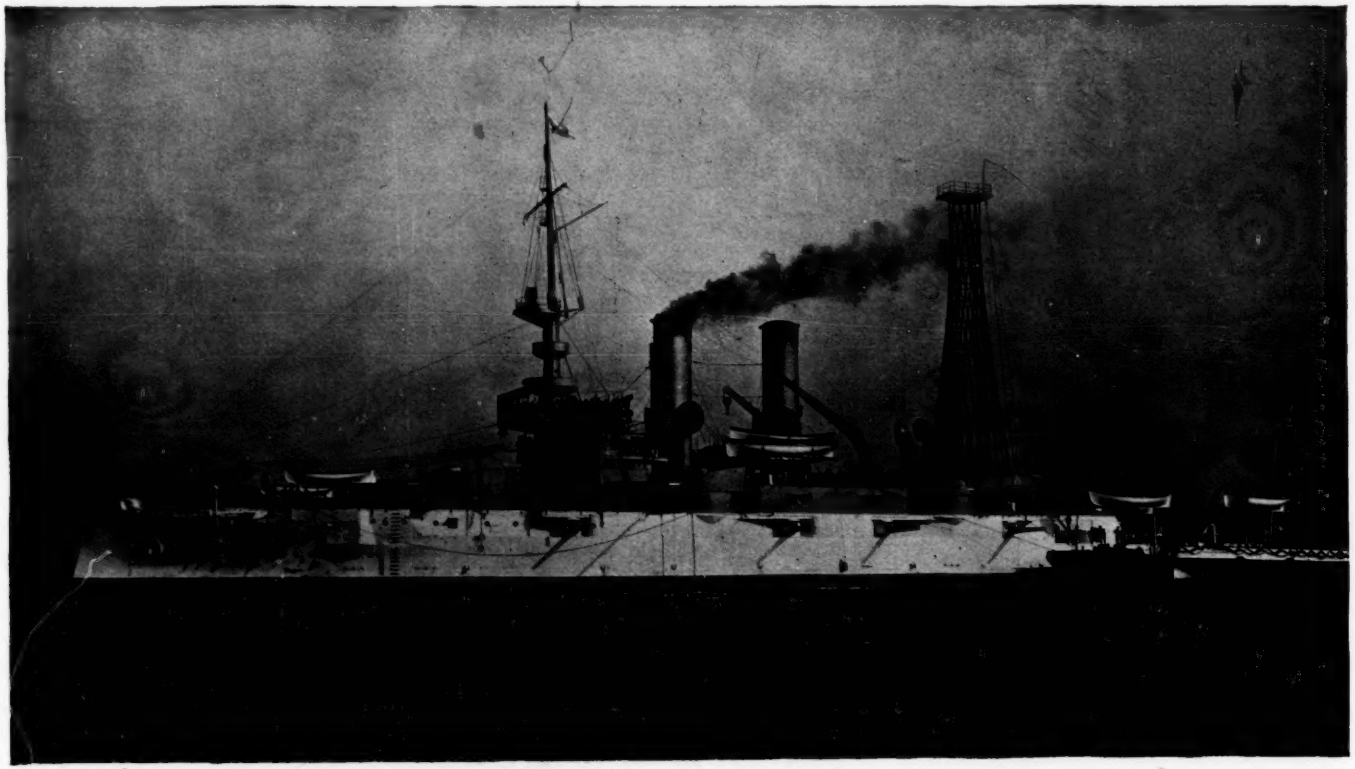

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ERRATUM.

JUNE JOURNAL—

"Rasplata," page 782—line 9.

For "*up*" read "*all.*"

THE JOURNAL
OF THE
ROYAL UNITED SERVICE INSTITUTION.

VOL. LIII. JULY, 1909. No. 377.

[*Authors alone are responsible for the contents of their respective Papers.*]

SECRETARY'S NOTES.

I. OFFICERS JOINED.

The following officers joined the Institution during the month of June :—

Captain T. D. Jackson, D.S.O., King's Own Royal Lancaster Regt.
Captain S. G. Faber, R.E.
Lieutenant Honble. H. C. R. Feilding, R.N.
Captain Honble. W. H. Littleton, 3rd Bn. North Staffordshire Regt.
Lieutenant P. Mortimer, Indian Army.
Second Lieutenant C. H. F. Thompson, 5th Bn. The London Regt.
Lieutenant E. H. L. Beddington, 16th Lancers.
Lieutenant G. H. Dennistoun, R.N.
Lieut.-Colonel A. Ross, Engineer and Railway Staff Corps.
Lieutenant E. J. A. Fullerton, R.N.
Lieutenant G. E. Lewin, R.N.
Lieutenant C. J. Burke, Royal Irish Regiment.
Captain A. W. Barrett, 25th Bn. The London Regiment.
Captain H. Maddick, 5th Lancers.
Captain W. C. Symon, R.H.A.
Lieutenant A. P. Pyne, Army Motor Reserve.
Major F. G. H. Davies, Indian Army.
Lieutenant A. C. Milne-Home, Northumberland Fusiliers.
Second Lieutenant R. F. Morgan, North Staffordshire Regiment.
Second Lieutenant W. A. Allen, A.S.C. (T.)
Second Lieutenant G. F. Plowden, Oxfordshire and Buckinghamshire Light Infantry.
Captain A. T. Hunt, R.N.
S. Roberts, Esq., late Lieutenant, Nilgeri Volunteers.
Captain Honble. A. F. W. Harris, King's Royal Rifle Corps.
Lieut.-Colonel W. A. Dring, C.I.E., East India Railway Vol. Corps.
Colonel W. Gordon (retired pay).
Captain A. S. W. Moffat, Border Regiment.
Captain C. L. K. Campbell, 16th Lancers.
Second Lieutenant G. F. de Teissier, Scots Guards.
Major J. L. Findlay, R.F.A. (T.)
Major L. J. Hext, R.F.A.
Lieut.-Colonel G. A. Emerson, late I.M.S.
Lieutenant T. C. A. Blomefield, R.N.
Lieutenant C. H. Malden, R.M.L.I.

Second Lieutenant F. B. Osborne, R.F.A. (T.)
Lieutenant J. P. R. Marriott, R.N.
Lieutenant H. C. Cumberbatch, Yorkshire Regiment.
Captain H. J. L. Clarke, R.N.
Captain R. K. Healing, West Riding Regiment.
Captain G. P. E. Hunt, D.S.O., R.N.
Major W. S. Prentis, Indian Army.
Lieutenant W. N. Custance, R.N.
Lieutenant F. S. Thackeray, Highland Light Infantry.
Major The Earl of Liverpool, M.V.O., 6th Bn. The Rifle Brigade.
Second Lieutenant B. C. T. Paget, Oxfordshire and Buckinghamshire Light Infantry.
Captain J. Bois, King's Own Royal Lancaster Regiment.
Captain G. R. Breading, D.S.O., Worcestershire Regiment.
Lieutenant H. S. Wilson, Royal Munster Fusiliers.
Captain W. E. Maples, West Riding Regiment.
Sub-Lieutenant E. C. Miller, R.N.R.
Lieut.-Colonel F. C. Muspratt, Indian Army.

II. During the first half of the year 1909 the number of officers who joined the Institution amounted to 188. The various branches were represented as follows:—

Regular Army	115
Royal Navy	29
Territorial Force (including Yeomanry)	22
Special Reserve	10
Royal Marines	5
Indian and Colonial Volunteers	4
R.N.R.	3
	188

III. CLOSING OF THE BUILDING.

The building will be closed for cleaning purposes from Monday, 16th August, to Saturday, 28th August, inclusive. The Museum will be open as usual.

IV. ARRANGEMENTS AT LECTURES.

The Council has decided to extend to ex-members of the Council the privilege of occupying the front bench in the Lecture Theatre at lectures.

V. ADDITIONS TO THE MUSEUM.

6002. Helmet-Plate of the King's Own Royal Tower Hamlets Militia, worn from 1878 to 1881.
—Given by Major H. Huntington, 6th Bn. The Rifle Brigade.

6003. A Water Colour Painting executed on board H.M.S. *Northumberland* of Napoleon I. at the time when the ship was on her voyage to St. Helena.

6004. Twenty-four Aquatint Engravings, after T. Rowlandson, of Hungarian and Highland Broad Sword Exercise, published in 1799 by H. Angelo, Curzon Street, Mayfair.
—Given by Colonel A. Bibby, late 4th Hussars.

6005. Belt-Buckle and Shako-Plate of the 8th The King's Regiment.
—Given by Captain J. C. Cooper.

3359. Walking-stick, formed from the jaw of a sword-fish, taken from the Palace of Tippoo Sahib after the storming of Seringapatam.—*Deposited by T. H. Babbage, Esq.*

THIRD ESSAY.

Honourably Mentioned.

Subject :—

"THE COMMAND OF THE SEA: WHAT IS IT?"

By Lieutenant T. FISHER, R.N.

Motto :—

"Non Sibi, Sed Patriæ."

THE title of this Essay is a phrase in every-day use that is often employed with no clear conception of its meaning.

Does it mean, for example, the power to invade a hostile country across an intervening sea? Or perhaps the power to conduct a military raid across this sea? Or again, does it mean the ability to crush one's enemies' over-sea trade whilst fostering one's own?

It is within everyone's experience that it has at times been employed to express all these conditions. According to one school of thought, the Japanese in their late war with Russia did not obtain true command of the sea until the destruction of the Baltic Fleet at Tsushima; and not even then if by command of the sea is meant the power to control and destroy the sources of the opponent's over-sea commerce. According to another, and perhaps more practical, view, they obtained this command when, after the first success on the night of 8th February, 1904, they were able to transport to, and maintain in, Manchuria an invading army.

Thus it is impossible for us to decide what constitutes Command of the Sea unless we have a clear idea of the purpose this command is to serve. To refer again to the Russo-Japanese war, it is evident that the relative economic and geographic situation of the belligerent Powers was such that by no possible means could Japan establish that sort of sea command over Russia that we established over France at the close of the great wars.

This being admitted, Command of the Sea as between two nations, the principal seats of whose power are separated by the sea, will be defined as: *"The bringing about of such a state of affairs on the sea as will allow of one belligerent developing its full national power towards the attainment of the object for which the war is waged."*

A brief consideration of this definition shows that the means employed to obtain this command will differ for every nation according to its situation, geographic, economic, and military, with reference to its possible opponents. For example, the United States would require to use very different instruments to impose its will on this country to those it would require to coerce Japan, though both are island Powers, and this difference in means employed is solely due to the relative situations of the countries concerned.

It follows, then, that the meaning of the term Command of the Sea differs for each country, and as it is not our business to elucidate the problems of other nations, we shall confine ourselves strictly to considering what this command means for Great Britain, and what instruments she will require to obtain it.

In this enquiry we shall be greatly aided by the experience of the past, for in the annals of this country can be found examples of war waged under almost all conceivable conditions. If by this enquiry into the past we can determine the instruments of this country's power in the past, we should be able, by making due allowance for the changes in material, to determine by what means we to-day may impose our will on possible opponents.

In general the wars which Great Britain has waged in the past fall into two categories, which, to borrow the expression of Mr. Corbett, can conveniently be termed:—

1. Limited Wars.
2. Unlimited Wars.

The distinction between these two forms of warfare may be seen in a fight between two small boys for the possession of an apple, or in a fight between the same boys for the leadership of a class. In case 1, the apple once disposed of, the relative status of the boys is not much affected; but in case 2, the effect is probably permanent if any decision is reached at all; and if no decision is reached, that is to say, if one boy is not permanently subdued by the other, the quarrel is almost sure to break out again and again until a decision is reached. And so it is with the wars of nations: there are wars for existence and wars for an apple. And though, as with small boys, the apple may sometimes prove the pretex for unlimited war, yet it will not do so unless other and deeper sources of difference exist.

As examples of limited wars, we have the Russo-Japanese war, Hispano-American war, etc. Of unlimited wars we have the Franco-Prussian war of 1870, for the hegemony of Europe, the American Civil war, the Anglo-Dutch wars, and the long series of wars between Rome and Carthage. Of limited wars which became unlimited we have the Seven Years' war, which, in its inception, was a war for supremacy in North America, yet in its results led to the long series of wars which terminated in Trafalgar and Waterloo, and determined for over a century the maritime and commercial preponderance of Great Britain.

The operations of war may be divided into two broad divisions:—

1. *The general conduct of the campaign.*
2. *The particular conduct of fleets and armies.*

The former is decided on by balancing the often conflicting demands of strategy and political considerations, domestic, and foreign. The latter, by balancing the often conflicting demands of minor strategy and tactics with the limitations imposed by the general conduct of the campaign as decided above.

Perhaps the best known example of the influence of politics on strategy is in the late war in South Africa, where the military operations were much prolonged and the cost greatly increased owing to the necessity of not alienating the burghers by harsh measures, or ruining the country in an economic sense due to a political decision to incorporate the Republics within the Empire.

Of the influence of the general plan of compaign on tactics, perhaps the best known example is the conduct of Lord Torrington, which gave rise to the now classic expression: "A Fleet in Being."

An example of failure to grasp these principles is afforded by Admiral Byng's conduct off Minorca in 1756. In this case the army of Richelieu was Byng's real objective, and his turn would have been served by taking up a position to cut off the supplies needed for the siege of Port Mahon, thereby obliging Galissoniere to assume the offensive or weaker form of tactics. As is well known, this was not the course pursued by Byng. Indeed, failing a genius for command, it is hard to see how any admiral could be fairly expected to so fly in the face of the then accepted opinion that at all times and seasons the enemy's fleet is the objective, and that it must be attacked at all hazards.

These considerations make it certain that no military or naval operations of the past can be usefully employed to elucidate our problems of to-day, unless we thoroughly master the political and economic conditions of the times. In this light, then, let us consider two of the greatest struggles in which this country has ever engaged:—

1. The Dutch wars as an example of unlimited war and concentration of naval force.
2. The Seven Years' war as an example of the class of limited wars, and of the causes which induce the dispersion of naval force.

The Dutch Wars.

These wars are probably the most purely maritime of any ever waged between two great nations. The underlying cause of Anglo-Dutch hostility appears to have been the wish of the

former Power to share in the benefits of the *entrepôt* system established by the latter.

The fact that England emerged from these wars far stronger as a commercial and colonial Power than she entered is generally held to prove the efficacy of a purely maritime offensive.

There were, however, other factors of great importance that must not be overlooked in considering the results of the war, viz.:—

1. The rising national power of England as compared to Holland, acting in peace no less than in war to modify their respective situations.
2. The pre-occupation of the Dutch with Continental affairs.
3. The very advantageous geographical situation of England as compared to Holland.

The relative unimportance of military (used in the wide sense as including naval) operations, as compared with economic conditions, in shaping the destiny of nations, is well shown in the outcome of the third Dutch war. This, from a naval point of view, was probably the least successful of the three great struggles, yet a few years after its close we find England firmly established in Holland's place as the *entrepôt* of Europe. No unprejudiced person can doubt that this state of affairs was in reality brought about by our advantageous situation, and was not the result of the war.

By far the greater proportion of the sea fights in all three wars took place between great fleets in close proximity to the English shores. They were due directly or indirectly to attempts on the part of the Dutch to cover the passage of their trade past the English coasts. The Dutch were therefore obliged to take the offensive, which, contrary to the usually accepted opinion, is almost invariably the weaker form of war.

The weakness of the offensive lies partly in the increased length of the lines of communication, and partly in the actual tactical disadvantages of the attack, both of which were well exemplified in the late unfortunate voyage of Admiral Rodjestvensky. The question is exhaustively treated by Clausewitz, and much of his reasoning applies equally to naval and military operations.

It is probable that the English bias in favour of the offensive is due to the French wars. The advantageous situation of France forced us to adopt this form of war, and the great efficiency of our fleets enabled us to overcome, and so obscure, its inherent weakness.

The importance of England's geographical position in determining the result of these wars is well shown by the events of the year 1667, when the English fleets were deliberately laid up for reasons of economy. The Dutch, though able to sail up

the Thames and lay waste the shores of Kent, were quite unable to stop the English trade at the numerous Western ports; whereas the trade of the victorious Dutch could only with great difficulty be conveyed past the hostile coasts of England, all of whose numerous harbours contained potential enemies.

The outstanding feature of these wars was the concentration of the whole of each nation's naval force into huge fleets, and the obstinate fashion in which these fleets disputed the mastery of the sea. This course seems to have been forced upon the Dutch by the necessity of securing a safe passage to their trade.

Trade in those times was conducted by fleets sailing at regular seasons. The English were obliged, in self defence, to follow suit, though their interests would have been better served by dispersion, than by concentration of force.

In the earlier wars the Dutch appear to have as far as possible avoided action, with the ulterior object of passing the trade through the danger zone. Experience taught them that the only effective way to do this was to defeat the English fleets, and, failing this, they laid up their merchant fleets entirely.

The injury to the Dutch over-sea trade was greatest during the first war; yet their national trading capacity was not much injured since a year or two after the first war their shipping trade attained the zenith of its prosperity.

In the third war, on the contrary, not nearly so complete a stop was put to their trade, yet soon after its close we find that England had usurped Holland's place as European carrier.

From this we must conclude that it is necessary to look to other sources than naval power to find the cause of the rise and fall of commercial nations. Naval power alone is unable to inflict vital injury, even on the most commercial of communities.

One other lesson we can draw, and that is, that where a real struggle for the mastery of the sea takes place, all available ships will be pressed into the service, and secondary objects will be neglected until the main issue is decided.

In this connection, a great advantage rests with the fleets which strategic conditions enable to fight in their own home waters. The effective force of their fleets is greater, and also small vessels can be pressed into the service and made use of.

An analysis of the growth of the Navy during this epoch shows that heavy fighting tends to increased size of units, and contributes to the unification of types.

It is noteworthy that the increased size of ships during this period of hard fighting was entirely directed to increasing the armament, and that the "enduring mobility," as it is expressed by "Barfleur," remained the same.

Exactly the opposite occurred during the revolutionary wars. The increase of size was then devoted to increasing the "enduring mobility." This is the natural corollary of widely

spread operations for the maintenance, and not the attainment, of sea command.

—	1660.	1675.	Increased or Decreased Percentage.
Line-of-battle ships	30	39	+ 31 %
Intermediates	45	37	− 13 %
Cruising craft	53	24	− 55 %

In 1649 the size of the average line-of-battle ship then building was 515 tons.

In 1659, after the first Dutch war, it was 816 tons.

Percentage increase, devoted principally to armament, 60 per cent.

The Seven Years' War.

During the greater part of this war the armed forces of Great Britain were directed by the elder Pitt, the greatest of English War Ministers. Throughout the war the military and naval forces were co-ordinated with a skill never equalled before or since. It is this fact that makes the study of this war so peculiarly important to naval officers.

We must remember that as between France and England the object of this war was nothing less than the control of North America. The genesis of the quarrel lay in the attempt of the French, from their positions in Canada and the Mississippi, to get control of what would now be called the "Hinterland" of our New England Colonies. Owing to the strength and vitality of the English Colonies, and the advantage they derived from Great Britain's preponderance at sea, it was fairly clear that unless considerable military aid was forthcoming from France, the struggle must end in the defeat of the French in America.

Pitt's main plan of campaign was, therefore:—

1. To take a vigorous offensive in Canada, devoting to this purpose every available man.
2. To hinder as far as might be the despatch of succour to Canada from France.
3. To so conduct the war in Europe, by availing himself to the full of the strength given by standing on the defensive, that France should be unable to make conquests which must, at the peace, be exchanged against the expected acquisitions in America. To this end he availed himself of the alliance with Frederick, and maintained an English contingent in Germany under Prince Ferdinand. It was of the essence of his system that this contingent should not be of greater force than was required to hold France in check. The combined naval and military

attacks on the coast of France must be regarded as a part of this defensive system, as their intention and effect was to reduce the pressure on Ferdinand and Frederick.

The West Indian expeditions, conducted after the North American campaign was concluded, had a two-fold intention :—

1. To acquire something to exchange against Minorca at the peace.
2. To bring added pressure on the French Court to make peace.

The French plan of campaign, as commenced by Marshal Belleisle and developed by the Duc de Choiseul, aimed at obtaining such successes in Europe as, at the best, should oblige the English to make peace before the conquest of Canada was completed; or, at the worst, should provide on the Continent and Minorca something which in exchange would enable France to maintain her footing in the New World.

These objects may appear to some as trivial, but it must be remembered that at that time the war fleets of all the maritime Powers could only be mobilised by pressing men from the merchant shipping. It was therefore essential for a maritime State to have a flourishing merchant marine, manned in peace by its own nationals. Under the prevailing navigation laws and the strict Colonial system in vogue, this merchant marine could only be obtained by the possession of Colonies; hence the importance of the West Indies and the North American Fisheries to France.

The failure of the French plan of campaign forced them as a last resort to attempt the invasion of England. Two schemes were prepared: the first by Marshal Belleisle in 1759, depended essentially on "evasion"; the second by Choiseul in 1762 depended on the idea of decoying the English home fleets away, and by an unexpected concentration securing the temporary command of the Channel. The measures taken to provide against these threats are of great interest, as they show the nature of the force required to frustrate an invasion project.

In case (1), the main French fleet in Brest was kept under observation by Hawke's battle fleet, with detachments to watch those ports where transports were assembling. In the Channel were two cruiser squadrons under Rodney and Boys. It was these two squadrons, whose strength lay in a number of weak units, that actually commanded the Channel and denied it to the enemy, and it should be noted that this work could not have been adequately performed by capital ships.

The defeat of Conflans by Hawke on 20th November, 1759, put an end to Belleisle's plan. True, the transports were not destroyed, but without a covering squadron of ships of the line, invasion by "evasion" was impossible owing to the ubiquity of the English cruisers. And this again shows that light ships of no

great individual power but very numerous were essential to the defence of the country.

With regard to plan (2), it need only be said that elaborate as were the decoys devised by Choiseul, they failed to draw the British Government, and strong fleets were so placed as to prevent the French concentrating. It is worth noting that as far as the French were concerned, a hard-fought action, even if they proved victorious, was a strategic defeat, since in their battered state they would be unable to secure their transports against the small squadrons of light ships always maintained by England in the Channel. Here again it is the light ship that commands the sea, the function of the capital vessel being to contain similar ships belonging to the enemy. If the object of the enemy be invasion, the containing fleet is placed in a position of peculiar advantage, for it is open to it to maintain a defensive attitude until its objective (the transport and troops) is within reach. The only way then open to the invader to avoid fighting encumbered by his transports, is to seek a fleet action beforehand, which in those days involved the tactical disadvantages of the attack.

The Seven Years' War provides examples of every kind of naval and military action, save one. We have:—

1. Continental warfare, in which British troops served under Prince Ferdinand.
2. Colonial warfare in America and India.
3. Combined naval and military "continuing raids," as at St. Lucia and Belleisle.
4. Combined naval and military "simple raids," as at St. Malo and Rochefort.
5. Attack and defence of sea-borne commerce.
6. Defence of the home country against invasion.

The one operation we miss is the clash of equal navies fighting for supremacy.

With this reservation in mind, let us trace the effect of the war on the national armaments.

It appears from a Parliamentary vote taken in 1755 that provision was made for 50,000 seamen and 35,000 Regular troops at the outbreak of the war. During the war it was found necessary to augment considerably the military forces, and in 1762 we find that some 20,000 British troops were employed under Ferdinand with some 70,000 Germans in English pay, whilst at the same time some 15,000 troops were taking part in the attack on Havana under Albemarle, and some 6,000 more in Portugal under Tyrawley. Thus it appears that independently of the garrisons, some 40,000 field troops were employed abroad.

In 1760 the Spanish Army was estimated at 91,000 men, that of France at about 187,000, whilst the field armies of Frederick of Prussia did not at any time much exceed 100,000

(Guerre de Sept Ans, Waddington, Vol. 4). Thus it will be seen that the force maintained by Great Britain bore no inconsiderable proportion to the available forces of the other great Powers. This is of great importance when we consider the relative positions to-day. The enforcing of the Militia Ballot Act made it fairly easy to maintain these troops abroad, since service in the Militia was so unpopular that, once embodied, little difficulty was found in inducing men to serve abroad.

The result of the war on the list of the Navy is shown in the following table:—

—	1756.	1762.
Ships of the Line	142	141
Intermediates	38	45
Cruisers	45	97
Flotilla...	48	84

It appears that the war led to a great increase in the number of cruising ships, whereas the capital ships and intermediates show no increase; the intermediates would indeed show a decrease were it not for the descent of the older and smaller line of battleships to this class.

The same tendency is found in all the wars of the 18th century, where the initial maritime preponderance was with England.

—	Increase of Cruising Ships. Percentage.
Spanish Succession	100 %
Seven Years	91 %
American Independence	195 %
French Revolution	208 %

In all the above cases except the War of American Independence the number of ships of the line is not appreciably increased, but in that war, owing to the strength of the allies it was necessary to increase the number of capital ships by some 33 per cent.

A further remarkable effect of these maritime over-sea wars is the steady reduction in the proportion of three-deckers among the capital ships from 28 per cent. in 1702 to 14 per cent. in 1815.

We may therefore draw the deduction that in past wars of the same general character as the Seven Years' War, the military power of England was directed into three principal channels:—

1. The provision of a fleet of capital ships adequate, but not more than adequate, to contain the capital ships of the enemy.

2. The development of as large a fleet of cruising ships as the maritime resources of the country would allow.

3. Last, but not least, the formation of a military striking force smaller but comparable to the field armies of other Powers, and capable of inflicting severe injuries on those Powers.

Mobility and fighting power in ships were then antagonistic, as indeed they are now, and we see from the decreased proportion of three-deckers that in the absence of hostile fleets of equal power, mobility tends to displace power in the capital ship.

Changes Introduced by Modern Conditions.

Let us now consider briefly the changes which have taken place since this country was last engaged in maritime warfare.

1. *No great Areas of Desirable Land Inhabited by Savages Now remain Unappropriated.*

The more valuable of these lands, as Australia and Canada, are so settled that apart from the military force of Great Britain, it would be almost impossible for any Power to effectually occupy them against their will. Thus the primary cause of the greater number of limited wars of the past is to a great extent eliminated.

2. *The Rise of Great Maritime Powers outside Europe.*

Against these Powers the traditional war policy of Great Britain is almost useless. Their distance and the lack of suitable bases would prevent their capital ships being effectively contained without dangerously weakening the fleet in the narrow seas, which is at present our only safeguard against invasion by any one of the military States of Europe. No effective commercial pressure could be brought to bear on these States, whereas our widespread commercial interests would be exposed to systematic attack. Further, where military power exists side by side with naval, as in the case of Japan, such distant possessions as Hong Kong and Singapore would be most difficult to defend.

3. *Increase in the Number and Power of the Neutral Maritime States.*

This is of the greatest importance to Great Britain. The traditional policy of this country to proceed against its adversary by the slow process of economic pressure rather than by the direct one of military force inflicts great loss and hardship on neutrals, and in the past—as in 1812—has more than once led to war. It is certainly arguable that in a long-drawn-out struggle with a Power like Germany, the injuries inflicted

on American commerce by an effort on our part to strangle our adversary might lead to armed intervention. And in these cases it should be noted that it is always the preponderant maritime Power that excites the hostility of neutrals.

4. *Steam Propulsion.*

It would appear that the substitution of steam for sails has in the main been advantageous to the preponderant maritime Power. It has also greatly reduced the hostility of foreigners to this country, and so diminished the chances of war. The reason for this is that in the days of sail the strength of the fleet depended on the merchant navy, from which the seamen required on mobilisation were drawn. These considerations led to the famous Navigation Acts, which fostered Great Britain's carrying trade, sometimes even at the expense of her commercial interests, and always to the detriment of foreign nations, who in return cordially detested the restraint thus put upon them.

The number of ports capable of succouring and refitting a modern fleet or single warship are far less numerous than was formerly the case, and consequently the containing operations of the preponderating Power are facilitated.

Further, the attack on commerce by the weaker Power is more difficult than formerly, whereas the discovery and consequent crippling of the commerce destroyer is somewhat easier. This follows from the fact that the "time capacity" of the modern cruiser, on which depends her value as a commerce destroyer, is less than that of the old-time frigate, whereas her "space capacity," which governs her use as a commerce protector, is somewhat greater than that of her prototype.[1]

5. *Railways.*

It is certain that railways are, in their effects, disadvantageous to the preponderating maritime Power, and this in four principal ways:—

a. The reduced importance of the coasting trade.

b. The reduced effect of blockade, owing to the facility with which goods can be passed through neutral ports and thence by rail to their destination.

c. The facility with which troops can be collected to repel any raids, such as those on Cadiz or Rochefort, and consequently the reduced effect which the anticipation of such raids will have on the enemy's military dispositions. For example, in 1757, when every man was urgently required in Germany, some

[1] It is usual in current literature to measure a ship's sphere of activity, if confined to her own resources, by what is called her "Radius of Action." It is more logical and more practically useful to express this idea in its simplest form, that is, as made up of space and time. This has been done by "Barfleur," and he has termed the two qualities "Space Capacity" and "Time Capacity."

20,000 Regular French troops out of a total of 187,000, together with a large force of Militia, were employed on coast defence. The mobilisation of these Militia troops had a most injurious effect on the harvest.

d. In former times accurate and early information as to proposed invasions of this country was always attainable, largely owing to the necessity of massing troops in a suitable place; and owing to railways this condition no longer holds.

6. *Conscript Armies.*

The adoption of the principle of a National Army by all the Continental Powers and by Japan has so altered the proportion between our available field army and that of possible opponents as to entirely discount the value of any military assistance we could lend to an ally. This is of great importance in view of the well-known British policy of preserving the balance of power. This implies that our weight will always be thrown against the preponderating Continental Power at the moment. The result of this military weakness is that friendly neutrals and potential allies are liable to be forced into hostilities against us, failing adequate military assistance to enable them to make head against their great military neighbour. Many examples of this tendency exist. Portugal in 1762 would certainly have been obliged by Spain to take up arms against us, failing the troops sent to her aid under Tyrawley. There are persons who think that in the event of hostilities with Germany, France and perhaps Holland would be in the same situation to day.

7. *Dependence of Great Britain on Foreign Food Supply.*

It is not thought that this in any way alters the relative situation of this country. Throughout the great wars we were dependent on external commerce for means of existence, and any general stoppage of trade, such as is implied, in the failure of the food supply, would have inevitably brought this country to its knees at any time during the last 200 years. This conclusion is borne out by the report of the late Royal Commission on the subject.

8. *Electric Communications.*

It is thought that these act in two ways:—

a. Strengthening the position of the predominant sea Power in its defensive function (*i.e.*, protecting its commerce and denying the sea to its enemy).

b. Weakening it, in so far as combined naval and military over-sea expeditions are concerned. Since surprise, the most important factor in these raids, will necessarily be more difficult to attain.

9. *The Invention of the Torpedo Boat and the Submarine.*

It appears that the former favours the predominant Power. Experience has shown that torpedo craft are helpless against organised squadrons properly equipped with the necessary auxiliaries. The comparative weakness of a single ship, if sighted by a torpedo boat before sundown in fine weather, has no counterpart in the old wars, when sunset did not make a sloop any the more able to tackle a frigate.

This quality in torpedo craft is of great importance, since experience shows that trade can only be effectively attacked where it is comparatively concentrated. As many of these points of concentration are dominated by ports in English hands, comparatively few torpedo craft would be able to deny these spots to marauding cruisers.

As regards submarines, the author has not seen enough of their employment under conditions in any way resembling war to have any definite opinion about them.

On *a priori* grounds it appears that their offensive employment will depend on the success of the flotilla in mastering that of the enemy.

From this brief survey of the changes wrought by modern conditions we see that two are by far the most important:—

a. The rise of neutral maritime Powers.

b. The relative military weakness of England due to the National Armies of the Continent. Both of these are very inimical to our old and tried methods of using the command of the sea to obtain our ends.

Let us now attempt to find what modifications, if any, are desirable in our methods of obtaining and using Command of the Sea, and hence what armed forces should be provided to enable us to exert the utmost of our national power.

It is clear that war with different Powers must be waged in different ways. For example, in the event of a Russian war it is probable that owing to our geographical and naval situation our sea power would prove redundant, whereas it is at least arguable that our military weakness is such that we should be unable to develop our real national strength. In a war with Japan, on the other hand, it is likely that our naval forces would be insufficient for the task laid upon them. This is in part due to the geographic situation of Japan, and in part to the weakness of the military position at home, which must always tie a large portion of the fleet to home waters.

It is certain that one nation, among other great Powers of equal or greater potential strength, cannot provide for all *possible* eventualities. If she did, not only would economic ruin be a probable result, but she would defeat herself by raising the very bogie (viz., a coalition) that she attempted to provide against.

Armaments must therefore be determined by probabilities, and probabilities depend on policy—not our policy only, but

the policy of other Powers. The most peaceful policy on the part of a Government does not justify it in reducing armaments indefinitely, since although the Government may be determined on peace at any price, yet when it comes to paying the price, the people will jib and plump for war, regardless of the sufficiency or insufficiency of the armaments.

Fortunately history shows that although the outbreak of war has often been unexpected, yet in those wars where no compromise is possible, *i.e.*, when both sides are fighting for something they hold vital; ample warning has been given, if not of the outbreak of hostilities, yet of the sources of difference that were the real cause of the war.

The organisation of armaments and the relative strength of the naval and military forces are therefore matters that entirely depend on political probabilities, and therefore concern the Government as a whole. This Government responsibility should not stop at deciding the sums to be allotted to the War Office and Admiralty respectively, but should enter into the general equipment of the two Services. For example, if the Government thought that the principal danger threatening the Empire was a war with a purely maritime Power, on equal terms in the narrow seas, on the lines of the old Dutch wars, it would be their duty to consider of what general type the ships for this purpose should be to produce the maximum fighting power at minimum expense. It is possible that they would find the largest and most powerful battleship, allied with the lightest of cruisers, most suited to this work.

If, on the other hand, they thought a war on the lines of the Seven Years' War was more probable, they would have to consider the question of providing a military striking force, the training and equipment of which would necessarily differ from that required for the home defence Militia, which is all that the first war would necessitate. Further, they would have to consider not only great fleets in the narrow seas, but also world-wide operations requiring the dispersion, and not the concentration, of force. In this case they might be led to think that a smaller class of battleship, combined with cruisers of moderate power, would best command the sea, in the sense that that command would be required to attain the end in view.

It is hoped that enough has been said to prove that neither Command of the Sea nor the use to be made of it can be profitably considered in the abstract.

Let us, then, proceed to discuss a particular case.

It is proposed to consider Germany as being the greatest military Power in Continental Europe, and we will see in what way Great Britain can obtain, and having obtained, make use of, the Command of the Sea.

War, as Napoleon said, is a question of positions.

The advantage given to this country by her geographical situation, standing as she does across the lines of sea communication of the German Empire, is often overlooked in assess-

ing the relative maritime strength of the two nations. It will be remembered that during the maritime wars with France the chief source of English anxiety as regards invasion, commerce protection, and safety of distant possessions lay in the practical impossibility of containing the French fleets with certainty. This difficulty was entirely due to the geographic situation of the French ports and their liability to westerly gales, and it acted in two ways: directly, in that the containing squadron was often unable to maintain its position; and, indirectly, owing to the greatly increased force, that reliefs, refits, and the hazards of the sea obliged the containers to maintain, as opposed to the force of the contained.

Put France in the geographic situation of Germany, and a very slight margin of superiority of capital ships in the containing force, which can lie snug and secure in some commanding English port, will amply suffice. The invention of the torpedo has further increased the importance of this geographic situation, for since we have seen that an attitude of *laissez-faire* on the part of our capital ships, combined with moderate activity of cruisers and flotilla, will serve the main end of naval force (close the enemy's ports and contain his capital ships), it follows that the onus of first movement is thrust on to the German fleet. If our North Sea flotillas be of such strength as to overpower the hostile flotilla, no naval officer will need to be told that this first move will be a very dangerous one.

The naval force required to bring about the Command of the Sea for this particular campaign would seem to be as follows:—

Capital Ships.—Since the conditions of the campaign will entail these ships being concentrated in fleets, the greatest attainable individual power is desirable because:—

1. For the same expenditure on building and upkeep more power can be obtained in large ships than in small.
2. A numerically smaller fleet is the more easily handled.
3. History shows—and the Dutch wars are only one example of this—that where fighting alone is to be considered, big units are more efficient than small.

Thanks to the geographic position, high speed is unnecessary, and equality only need be aimed at.

A slight margin of superiority — say 15 per cent. — in numbers would suffice.

Intermediate Ships.—It does not appear that in the past speed was ever considered of much importance in these vessels, and since the conditions of their work, *i.e.*, the convoying of over-sea expeditions and the stiffening of the cruiser line, have been made easier, there does not appear to be any reason why the older and less efficient capital ships should not be used for this purpose. If steps were taken to disrate our capital ships

rather more rapidly than those of our opponents, there should be no reason to build any of this class.

Cruisers.—As heretofore, the real work of sea command will fall to the cruisers, assisted in the narrow seas by the flotilla.

No better definition of a cruiser exists than that given by "Barfleur" in his book on Naval Policy: "Ships not intended for the line shall be as small as is compatible with the work to be done, but not so small that the larger ones will not in combination be a match for any ship not of the line."

Under modern conditions the second part of this definition entails three consequences:—

1. Guns must be carried which can be used effectively at fighting ranges.
2. Gun crews and the ammunition supply must be protected from shells bursting about the ship.
3. Stability: should be protected against the lighter nature of Q.F. guns, and against high-explosive direct-action shell of large calibre.

The first part of Barfleur's definition implies that the number of these guns must be very limited, and for technical reasons it is undesirable to mount more than one calibre of gun in each vessel.

To-day it appears that these conditions would be met in a ship carrying six 7·5-inch guns, with adequate speed and light side armour, of about 9,000 tons, to cost about £800,000.

After the revolutionary wars the cost of the larger class of capital ship was about £85,000, and that of a 38-gun (nominal) standard frigate about £40,000, *i.e.*, the cost of the cruiser was about 47 per cent. of the cost of a capital ship.

The ratio to-day would be exactly the same, assuming the capital ship to cost £1,700,000.

A numerous class of lighter cruiser would be required; but since under modern conditions they cannot fulfil the second qualification laid down by "Barfleur," they belong more properly to the flotilla, and correspond to the old-time sloop.

The Flotilla.—It is impossible to exaggerate the importance of the flotilla in the narrow seas, where during a great part of the year the dark hours exceed the light, and fogs are very prevalent. No freedom of action is possible without the gravest risk to the capital ships, however strong they be, if the flotilla has not mastered that of the enemy. The capital ships of the side that has the weaker flotilla will, even if superior, run such grave risks in endeavouring to make their superiority felt as to jeopardise that superiority, how great so ever it may be.

For this reason it is felt that the greatest effort of the Service (both in brains and money) should, in a war of this character, be devoted to ensuring the victory of the flotilla.

It would seem that this end would best be served by aiming at equality of instruments in superior numbers rather than in an attempt to outdo the enemy in the strength of individual units, which can only lead, in a vicious circle, to the production

of vessels, which, from their size and cost, are unsuited for the work required of them. The vessels of the flotilla should be no larger than is necessary to enable them to withstand the sea conditions prevailing in the theatre of war, and to mount an armament and possess a speed equal to the vessels of the enemy.

It is hoped that it is now clear that so far as war with Germany is concerned, very great reductions can be made in our present relative naval strength, consistently with obtaining and keeping that form of Command of the Sea which has for its object control of the enemy's sea communications and attacks on his outlying territory.

It remains to be considered whether this form of sea command will attain its object, *i.e.*, forcing the adversary to make peace.

It is here that the evil influence of railways and of neutral maritime Powers makes itself felt: the first in reducing the pressure of sea power; the second in modifying the measures which the preponderant sea Power can take against its adversary, without, as in 1812, bringing neutrals into the field.

Opinion will, of course, differ as to the extent that these factors have changed the situation. It is the opinion of many persons competent to form a judgment that no decisive result could be obtained against a nation like Germany within reasonable time; by which is meant before the exasperation of neutrals became so great as to lead to intervention in some form. We may be sure that since sea power will have caused the injury, it is against sea power that intervention will be directed.

Another point that deserves close consideration is the position of weaker Continental States. The maritime situation of this country would be much changed for the worse were the great power of the German Army used to force France and Holland into a coalition against us. To some this may seem a chimera; but history shows analagous cases: that of Portugal in 1763 has been quoted, and military autocracies—Germany in war is no less—do not stand on ceremony when fighting for vital interests.

The trend of modern opinion is in favour of the direct application of armed force to attain one's end, as opposed to such indirect methods as laying waste your opponent's country. Now, sea power, in so far as it depends on the destruction of the enemy's sea communication, is merely another form of the barbarous plan of burning the enemy's barns and hayricks. The progress of thought in the future as in the past must be expected to still further weaken this form of sea command as a national weapon, and we shall be compelled to turn more and more to direct means of attaining our ends.

We are thus forced to conclude that in a conflict with Germany, what England requires is a Navy such as shall enable her to take full advantage of her favourable geographic situation, and which, thanks to that situation, need only slightly exceed that of her enemy. This Navy to be backed up by a

National Army not necessarily equal to, but comparable with, the Continental armies—such an army, in fact, as the elder Pitt wielded during the Seven Years' War, brought up to modern standards.

With such an army no fear need be entertained of neutral States being forced to take up arms against us and so weakening our maritime position; the attempt could only recoil on the aggressor. Further, Germany, instead of standing to win all and lose nothing in an encounter with England, might be made to feel in her own person the sharp spear that sea command, with adequate military support, becomes in the hands of a great Minister.

Space will not permit of considering all possible conflicts in which this country might conceivably be engaged. The case we have taken sufficiently illustrates the idea that sea command cannot be considered in the abstract, and that to mean anything at all it must be considered in relation to other factors. Further, under modern conditions the military, as opposed to the naval, side of sea command, being more direct in its action, tends to increase in importance. Sea command is thus a state of affairs inextricably mixed with, and complicated by, other considerations germane to, but not identical with, the purely naval aspect under which it is generally considered.

It is evident that the Government alone are able to decide what particular form of sea command is necessary at any moment, and consequently they alone can determine the instruments by which this command is to be ensured. All that criticism is competent to do is to examine the adequacy or otherwise of the existing forces for some particular conflict arbitrarily chosen; and even in this it will be handicapped by ignorance of contingencies which may have influenced the Government.

It is this fact that makes the discussion of sea command, in other than particular cases, so difficult, and the conclusions reached so nebulous.

Yet it is hoped that this Essay has succeeded in establishing the truth of the definition with which it started, viz., that sea command as between two nations, the principal seats of whose power are separated by the sea, is:—

> The bringing about of such a state of affairs on the sea as will allow of one belligerent developing its full national power towards the attainment of the end for which the war is waged.

THE FORTUNE OF WAR.

By Lieut.-General H. D. HUTCHINSON, C.S.I.

Wednesday, 24th February, 1909.

General Sir W. G. NICHOLSON, G.C.B. (Chief of the General Staff), in the Chair.

"War is a terrible thing from every aspect; but in none is it more so than in its awe-inspiring uncertainty, and the chances which affect its results."—*Lord Wolseley.*

"The circumstances of greatest moment in war seem to be the numbers and bravery of the soldiers, the abilities of the commanders, and Fortune, which exerts a powerful sway over all human concerns, and especially those of war."—*Livy.*

I MUST tell you that this paper on "The Fortune of War," which I am about to read to you, is practically the same lecture which I delivered in India some eleven years ago; but it will probably be new to everyone here, and as the subject is not uninteresting, I have readily agreed, on being asked, to repeat it this afternoon.

To plunge at once *in medias res*. I suggest for your consideration the statement—and I propose to support it by some remarkable illustrations—that more strange things, incidents, coincidences—call them what you will—have happened in war, and in the lives of men whose business is war, than could be invented or imagined by anyone. But these things are, notwithstanding, true, and the effect of them on the careers of individuals, on the fate of battles, and on the fortune of States, has often been far-reaching, decisive, and indelible.

Probably everyone here this afternoon will readily admit that there *is* such a thing as fortune: and that fortune, which influences so largely, not only the actions and lives of men, but also the affairs and destinies of States and Nations, is a factor neither to be eliminated from, nor ignored in, our calculations. We do not, of course, all talk of this thing by the same name. Some of us speak of it as chance or luck, others refer to it as fate, and others, again, mention it with reverence as Providence. But call it what you will, it is certain that no person, whatever his rank, or station, or profession, can go through life without having some strange experience to relate, or some curious coincidence to recount, which has sensibly affected his own

career, or that of some friend or acquaintance, which he will ascribe, according to his temperament, to fortune, or luck, or Providence, and which he can account for in no other way.

But nowhere are the freaks of fortune more noticeable than in connection with war. History teems with incidents in which great military issues have turned literally upon some lucky or unlucky stroke of fate. A great General has told us himself that in his opinion "after the finest combinations have been planned by the ablest commanders, three-fourths of the result will still depend upon chance." This is, perhaps, a somewhat sweeping assertion to make, but it is undoubtedly true that many besides Turenne have held this belief; and that many famous captains, including the great Napoleon himself, have trusted much to Fortune; while all nearly, at some time or other in their lives, have owned their indebtedness to the smiles, or have ascribed their disasters to the frowns, of the fickle goddess. It will be interesting, and not uninstructive, to note some of the more striking cases that have occurred, and we cannot begin better than by examining the careers of those famous rival leaders Napoleon and Wellington, and observing how their great destinies were affected, and, so to speak, launched into conquering grooves, by incidents or accidents which, at the time of their occurrence, could not by any possibility be supposed to have such a vital significance.

To speak of Napoleon first. In the autumn of 1793, long before ever he was known to fame, France was in a state of anarchy and rebellion. The Republican Government at Paris, styled the Convention, enforcing its cruel mandates by a reign of bloodshed and terror, was engaged in endeavouring to reduce to subjection the provinces of the south which had revolted against its authority. One of its armies had taken Marseilles, and was now marching against Toulon, which city at this time the English were helping to hold. Their fleet, under Lord Hood, being in the roadstead, their aid had been invoked by the municipal authorities, who justly dreading the vengeance of the Convention whom they had defied, had called in the foreigner to help them. In a preliminary skirmish outside Toulon, at a place called Ollioules, Dommartin, the commander of the artillery of the Convention, had been seriously wounded, and it happened that there was no one present qualified to replace him. In this emergency, an officer named Cervoni, Adjutant-General of the Republican Forces, was despatched in haste to Marseilles to try and find there someone capable of directing the artillery in the siege operations now about to be undertaken against Toulon. Fortune decreed a chance encounter in the streets of Marseilles with Captain Napoleon Buonaparte, a young artillery officer, who was then on his way from Avignon to Nice in charge of a convoy of ammunition. Cervoni was so much struck by his appearance and conversation that he decided to offer him the command of the artillery of the army of investment. The offer was accepted, with the result

that within a few weeks, so wise were the counsels of Captain Buonaparte, and so vigorous his measures, the place was captured, the English withdrawing to their ships, and abandoning the city to its fate.

Thus, through what was literally a happy chance, was this young unknown captain of artillery afforded the opportunity, when he was only twenty-four years of age, of showing the stuff he was made of. His general (Dutheil[1]), writing after the fall of Toulon to the Minister for War at Paris, said: "I fail in expressions to depict the merit of Buonaparte. A great deal of science, as much intelligence, and too much bravery: such is a faint sketch of the virtues of this rare officer. It rests with you, Minister, to retain them for the glory of the Repubic."

This recommendation was not overlooked or forgotten. It ensured the honourable employment of Napoleon (who was made a general after the fall of Toulon) in the campaign of 1794, on the frontiers of Nice, in the course of which he increased his reputation, and in the spring of 1796 obtained for him the command of the Army of Italy, when he speedily brought to a close, by the victory of Montenotte, glorious to himself and to France, a war which had been wearily dragging on for nearly four years, and laid the foundation of a career which stamped him as the greatest soldier of modern times. Fourteen years later, when, as Emperor of the French nation, and Dictator of Europe, he sought in marriage the hand of an Austrian Princess, the question of his noble birth was raised; and servile genealogists, anxious to prove him worthy by descent of an alliance with the Royal house of the Hapsburgs, attempted to trace his ancestry back to an ancient line of Gothic Princes; but Napoleon himself cut short these unworthy speculations by declaring bluntly that he dated his patent of nobility from Montenotte.

It is well known that Napoleon was a great believer in fortune, and I think you will agree with me, with this instance before you, that he had some justification for his faith.

Before we proceed to speak of Wellington, we may take two more illustrations of the Fortune of War from this siege of Toulon. I have told you that when the place fell the English eventually withdrew to their ships, which were anchored in the roadstead. This was only after desperate fighting, but the capture by the Republicans of a position called from its great strength and commanding situation, Little Gibraltar, rendered further resistance useless, so they embarked on their vessels and prepared to put to sea. But this was not so easily done. A violent east wind prevailed and prevented the fleet from leaving the shelter of the port. In the meantime, where the ships were moored, they were within easy range of Little Gibraltar, and Buonaparte, seizing on the opportunity offered, hastened the con-

[1]In a codicil to his will dated at St. Helena, in April, 1821, Napoleon bequeathed the sum of 100,000 francs to the Lieutenant of Artillery Dutheil, great nephew of his General at Toulon.

struction of a heavy mortar battery, the fire from which must soon have set them ablaze and destroyed them. Eagerly was the work pressed on, but the Fortune of War decreed that neither on this occasion, nor on any other, should a British fleet fall a prize to his arms. Before the battery could be completed and armed, the wind changed, and the ships put to sea and got safely away. You see, therefore, that a simple shift of the wind made a considerable difference on this occasion.

The other incident of the siege of Toulon that I would mention to you is this: The besiegers, though victorious in the end, did not by any means have it all their own way at first. The resistance was stout, and sorties by the invested garrison frequent, and the hand-to-hand fighting that ensued of the hardest. In one of these affairs, Captain Buonaparte was wounded by an English gunner, who drove a lance through his thigh, and he retained the mark of the wound all his life. When the *post-mortem* examination of his body was made at St. Helena in 1821, the traces of this wound received at Toulon were distinctly visible. But this is not what I was going to tell you. It was on another occasion, standing in a battery in which the enemy's shots were falling thickly, and in which the casualties had been very heavy indeed, Buonaparte was dictating some orders to a young sergeant who was seated on the ground writing, when a cannon ball, plunging over the parapet, pitched between them, and covered them both in a shower of earth and sand. No one was hurt, however, and the young sergeant, flicking the dirt off the paper, said: "That's all right; no need for blotting-paper here!" Buonaparte was much struck by his coolness, and inquired if he could do anything for him. "You can, indeed," was the reply; "you can change these if you like," touching his worsted shoulder cords, "into golden ones!" Needless to say, Buonaparte did not forget his comrade; the young sergeant's promotion was rapid after this, and he was known to fame in later years as Marshal Junot, Duke of Abrantès. He certainly owed something to the Fortune of War.

But if Fortune had something to say to the shaping of the career of Napoleon, her benign interposition was still more markedly exercised in the case of the Duke of Wellington. His first rude experience of war in the dreadful winter of 1794-95 in the Netherlands ended, he was ordered with his regiment, the 33rd, to join a force directed against the French Settlements in the West Indies. In the autumn of 1795 the expedition sailed, convoyed by some men-of-war under Admiral Christian, but after six weeks' buffeting by adverse winds the ships were all driven back to Portsmouth by storms and stress of weather, and the proposed operations were abandoned. A few months later, the 33rd were ordered to India, and arrived in Calcutta in February, 1797. The destination of the regiment was thus accidentally changed, and Colonel Wellesley, as he then was, found himself in the East, instead of in the West Indies; and there commenced that great and conquering career which led

him eventually from victories over Mahratta hordes to triumphs over Napoleon's best Marshals, and culminated finally in glory at Waterloo, where he overthrew the great Emperor himself! Who shall say how the fate of India, of Europe, and of the world, was affected by those warring elements that drove back Admiral Christian's fleet, and defeated all its attempts to gain the shores of the West Indies?

But even when Fate had transported him to India, Colonel Wellesley on one memorable occasion did his best to escape from the country, and was certainly at the time very wrath that he did not succeed. To explain this incident, which has a strong bearing on our subject, I must remind you that in May, 1798, Napoleon led an expedition to Egypt, the avowed object of which was to conquer and colonise that country, and through this achievement, to upset English rule in India. At first, all went well. He had with him a fine fleet and some 40,000 men on transports, and was accompanied by generals like Junot, Berthier, Desaix, Kléber, Lannes, Marmont, and Murat, all destined to write glorious names for themselves in the future on the pages of history. The English fleet under Nelson, which might well have intercepted him, was driven out of his way by opportune storms. On the 12th June he captured Malta, and on the 2nd July he landed successfully at Alexandria, and a few days later, after defeating the Mamelukes in more than one fight, he established himself at Cairo. But now came news of disaster. Nelson had at last succeeded in finding the French fleet in Aboukir Bay, and on the 1st August he attacked, and destroyed it utterly. This misfortune left Napoleon in rather a tight place. His designs against India were of course crushed by the blow that had fallen, and his own safe return to Europe with his army seemed now at least problematical. For some months longer he remained uncertain in Cairo, but hearing that the Turks in Syria were preparing an army to attack him, he marched against them in February, 1799, defeated them in several engagements, and early in March approached St. Jean d'Acre, and laid siege to it. But here the Fortune of War declared against him. Admiral Sir Sidney Smith, commanding an English squadron cruising off the coast, opened fire on the French as they approached the shore, and was surprised to find his fire answered only by musketry. In a moment he divined that the French siege artillery was to come from Alexandria by sea, and very speedily he discovered and captured the ships that carried it. Without his artillery, Napoleon could effect nothing against St. Jean d'Acre, supported as it was by the English, and supplied from the sea. After wasting two whole months before the place, he abandoned the enterprise, and commenced a retreat (which was a period of horrors almost too dreadful to describe) to Cairo, which was reached about the middle of June: and on August 22nd (seeing that Egypt was played out) he sailed with two frigates for France, taking with him only Berthier, Lannes, Murat, and a few others, and arrived at Fréjus after a six weeks'

voyage, during which he narrowly escaped capture by the English fleet.

Well, you will say, what has this long digression to do with Wellington? I will try to explain. On the departure of Napoleon, General Kléber was appointed to the command-in-chief of the French forces in Egypt. He was a wise and able Governor, and under him all might have gone well for the French, but most unfortunately, he was assassinated by a fanatical Arab in June of the following year (1800), and the command then devolved upon an officer called Menou, a man whose ambitious schemes, and extraordinary conduct, resolved the British Government to take effectual measures, which they had long contemplated, in alliance with Turkey, for expelling the French from the country. These measures comprised the despatch of an expedition from England under Sir Ralph Abercromby, and of an auxiliary force from India under Sir David Baird. Now, Wellington, or Colonel Wellesley, as he should still be called, fully expected to command this Indian contingent himself. It was a force which had been originally collected at Trincomalee, in Ceylon, and designed under his command to annex the island of Java; but at the last moment, in consequence of instructions from England, it was sent round by sea to Bombay, and its destination changed to Egypt. Colonel Wellesley, who had worked hard at organising and equipping it, confidently expected to proceed in command of it himself, and he was greatly disappointed, on arrival in Bombay, to learn that Sir David Baird had been appointed to the command-in-chief, while he was nominated only second-in-command of the expedition. His own brother, the Marquis of Wellesley, was at this time Governor-General of India, and he complained to him bitterly of what he described (not with justice, however, for Sir David Baird was his senior) as his unfair supersession. Notwithstanding, he would certainly have gone to Egypt as General Baird's second-in-command if he had not at this juncture fallen ill, so that he stayed behind, and it sailed without him.

Now, I think you will agree with me that fortune, or an all-wise Providence—call it what you will—had something to say to the shaping of Wellington's career about this period. It certainly was not his own fault that he did not leave India at this time, but there was other work for him to do, and the stars in their courses decreed that he should stay in the East, and "against the myriads of Assaye clash with his fiery few, and win," and so gradually build up and establish that name for intrepidity, resolution, and sagacity which marked him out later as the leader of England's armies against the hosts of France, and enabled him to triumph over them all.

It may interest you to note in this connection that a voyage from India to Egypt in sailing-ships was not in those days the simple matter that it is now in a P. and O. steamer. Sir David Baird's expedition sailed from Bombay on the 5th April, 1801, but did not succeed in reaching

Kossier, about 250 miles south of Suez, until July, 1801, after losing two transports on the way. As after this it had some 140 miles of desert to cross before striking the Nile at Thebes, and then 300 miles more to travel in boats to reach Cairo, you can understand that timely co-operation between it, and Sir Ralph Abercromby's force, was not to be depended upon, and, as a matter of fact, the battle of Alexandria (21st March, 1801), in which the gallant Abercromby was killed, was fought and won long before Baird's contingent appeared upon the scene. Cairo, too, had surrendered to the English (21st May, 1801). But Alexandria still held out, and in the vigorous and successful operations for the reduction of this last stronghold of the French in Egypt the Indian Division took an honourable part.

I have now narrated to you some incidents in the early careers of two very famous generals, which undoubtedly had a marked effect upon their after lives and fortunes. Before I speak of strokes of fortune which have clearly decided the issue of battles or the fate of armies, I will tell you of one more famous General (though he is not, of course, to be in any sense compared either with Napoleon or with Wellington) who, commencing life in the ranks as a private soldier, finished it on a throne, and when he died, after a reign of twenty-six years, left behind him the reputation of being a wise and good king. He emphatically owed something to the Fortune of War.

The man I refer to was Bernadotte, Marshal of France, Prince of Ponte Corvo, and (as Charles XIV.) King of Sweden and Norway. Bernadotte's career was really marvellous, and assuredly he was born under a lucky star. Commencing in the humblest grade in 1780, he fought his way up to the command of a division in 1794, and ten years later gained a Marshal's bâton, while in the following year, for his distinguished share in the great victory of Austerlitz, he was created Prince of Ponte Corvo. In the next year (1806) occurred the incident which afterwards made his fortune, though no one could have guessed it at the time. In that year Napoleon at Jena and Auerstadt—both battles fought on the same day in the same neighbourhood—destroyed the military power of Prussia. At the former place he was in chief command himself; at the latter, Marshal Davoust directed the operations. The corps of Bernadotte was so disposed before the action at Auerstadt commenced, that it could have effectively co-operated with that of Davoust; but Bernadotte was jealous of Davoust, and disinclined to serve under his orders, so, relying on an ambiguous sentence in the instructions sent by the Emperor, he refused to move to his support. As it happened, the greater was the glory reaped by Davoust, for by skilful dispositions and resolute handling of his force, he won a great victory over tremendous odds. Napoleon was furious when he heard of Bernadotte's inaction. "If I was to send him to a Council of War," he said, "nothing could save him from being shot." Meantime, his corps being

perfectly fresh, while all the others had lost heavily, he was despatched by the Emperor in pursuit of the flying foe, whom he overtook and defeated, first at Halle, and then, with Soult's assistance, at Lübeck. Now, Fate decreed that at the very time that Lübeck fell, some ships bringing a division of Swedish infantry, sent by Gustavus IV. to help the Prussians, should enter the port. The Swedish troops had hardly landed, when, attacked by the French and abandoned by the Prussians, they had to surrender at discretion to Bernadotte. This Marshal (Marbot tells us in his admirable memoirs) had a most engaging manner, and could be extremely pleasant if he liked. He now was at great pains to pose before his prisoners as a man of magnanimous and generous disposition. He accordingly treated the Swedish officers with great affability, granted them honourable terms of surrender, restored them their horses and baggage, provided for all their wants, and, inviting their chief, Count Mœrner, to his own quarters, overwhelmed him with kindness and attention, so that on their return to their country the Swedes were all loud in their praise of Bernadotte. All this happened in 1806. Two years later there was a revolution in Sweden. The King, Gustavus Adolphus, was compelled to abdicate, and was succeeded by his uncle, the Duke of Sudermania, who ascended the throne as Charles XIII. But he was childless, and as it was necessary to nominate some one as Crown Prince and heir to the throne, a Prince of the House of Holstein was selected for the honour. But he died suddenly in 1811, without heirs, and the Swedes had then to look abroad for some one to fill the vacant place, to which, indeed, there were many aspirants at once. At this juncture, while various claims were being canvassed, Count Mœrner proposed Bernadotte, and, mindful of his generous and humane treatment of their troops (his prisoners) in 1806 at Lübeck, the suggestion was at once welcomed by the whole nation, and finally acquiesced in by Napoleon, who, although he disliked Bernadotte personally, and had expressed his opinion of his conduct in no measured terms after Jena in 1806, and again after Wagram in 1809, yet recognised his great ability, and thought perhaps that by permitting him to occupy the throne of Sweden, he would ensure his assistance and co-operation in carrying out his own plans and designs in Europe, whatever they might be. In this view Napoleon was very much mistaken. But that is another story. It was not, however, without some difficulty that the Emperor was finally induced to approve of the nomination of Bernadotte as Crown Prince and heir to the throne. "What," said Bernadotte to him, when he still hesitated, "will you make me greater than yourself by making me *refuse* a Crown?" The sarcasm told, and Napoleon merely replied: "Go! our fates must be accomplished!" From that time Bernadotte devoted all his energies to the interests of his adopted country, which has never had cause to regret its choice. I think we may concede that the Goddess of Fortune had him under her special protection.

I may now proceed to give you some examples of battles lost, or won, through purely accidental circumstances, and these perhaps will impress you more with the large share that fortune plays in war, because the result is more directly and immediately seen. Napoleon used to say "that a battle sometimes decides everything, and sometimes the most trifling circumstance decides the fate of a battle." This is so true that hardly any battle can be examined closely—even from those Biblical days when we are told that a certain man drew a bow at a venture and smote King Ahab between the joints of his harness, down to the present time—in which fortune has not played a conspicuous part. Sometimes it is an order miscarried or misunderstood; sometimes it is the weather, an unexpected frost, or thaw, or a sudden flood in a river; sometimes it is sleep—sleep at the wrong time, *bien entendu;* sometimes it has been a question of the health of the commander on one side or the other; and sometimes it is accident pure and simple, which has affected and decided the result of a great battle or military operation. History, at all events, teems with such examples, and my only difficulty has been to make a suitable selection to put before you.

We will begin with the Waterloo campaign, because its leading incidents are familiar to everyone. It literally bristles with instances which illustrate the Fortune of War.

Napoleon's plan in this campaign was to cross the Sambre at Charleroi, and move rapidly upon Brussels, thrusting himself in between the Allies (the English and the Prussians) whom he calculated would then recoil upon their respective bases—the one to the north, the other to the east—and might then be attacked and destroyed separately. The success of this plan depended upon the secrecy of his movements, and the rapidity with which they were carried out. He left Paris himself for the front on 12th June, well neither in body nor mind. "He was fully aware," says Lord Wolseley (in his interesting book, "The Decline and Fall of Napoleon"), "that he was not now physically the man he had been in the glorious past, and his mind was full of care. A firm believer in luck, all had gone so much against him during the three previous years that he scarcely dared to trust in fortune now. 'Ah,' said he, 'you do not know what a force good luck is! It alone imparts courage! It is the feeling that fortune is with us that gives us the hardihood to dare. Not to dare is to do nothing of moment, and one never dares except as the result of good luck. Misfortune depresses and blights the soul, and thenceforward one does nothing good.'" At some time or other in our lives, I expect all of us have realised what truth there is in these sentiments.

By the 14th June, his army was assembled within a short march of Charleroi, where Zieten with 32,000 Prussians blocked the way. The Emperor's orders, issued from Beaumont (see map) now were to move to the attack at 3 a.m. on the 15th, the object being to sweep Zieten out of his path before he could be

reinforced, and *by the same evening* to occupy Quatre Bras and Sombref, before the Allies could join their forces on this line to oppose him. But now occurred an accident which frustrated the complete execution of this plan, and had, in fact, a vital bearing upon the issue of the campaign. The corps of Vandamme lay in front of the central column, and it should, of course, have been the first to start. But Vandamme received no orders! Why? Because on the evening of the 14th he could not be found! He had gone off to sleep at a house some distance from his corps, and had not left his address! The orderly officer who wandered about during the night endeavouring to find him, eventually fell from his horse, and broke his leg. He lay helpless for some time, and thus the order was never delivered to Vandamme, whose division consequently remained tranquilly in bivouac until Lobau's corps, which had started at 4 a.m., came up from behind, when the state of things was with difficulty explained. Napoleon himself called this incident a "*funeste contretemps.*" It caused a delay at least of four or five hours on the 15th, at a time when minutes even were precious, and you can believe of what inestimable value this respite was to the Allies, who were, in fact, somewhat taken by surprise by Napoleon's sudden irruption, and were not yet by any means prepared to meet him.

But it was on the next day, the 16th June, that one of the most extraordinary illustrations of the Fortune of War occurred that history records—an incident so remarkable that no one could possibly have contrived it, and the effects of which practically decided the issue of *two* pitched battles, and, it is hardly too much to say, the fate of the campaign. To understand clearly what happened I must briefly explain to you the situation on the 16th. The English Army, under the Duke of Wellington, was on the morning of this day engaged in concentrating on Quatre Bras. The Prussians, under Marshal Blücher, had asembled three out of their four corps (totalling 83,000 men) at Ligny, where they were drawn out in battle array, ready to fight if attacked; and the French, divided now into two armies—one of 47,000 men, under Ney, and one of 73,000, under the Emperor himself—were preparing to assault the Allies in the two positions indicated. Now, several orders were sent from Napoleon to Ney on the 16th, but as the hours passed on, and more was known of the position and strength of the Allies, it was finally arranged that Ney should drive the English out of Quatre Bras and then detach one of his corps to fall upon the Prussian right flank, ascertained to be posted about Brye and St. Amand. As soon as this flank attack was developed, the Emperor would himself strike hard in front, and the result should be the defeat and destruction of the Prussian Army. But everything went wrong on this eventful day.

In the first place, although time was so precious, seven or eight hours of daylight were unaccountably wasted by Napoleon

himself on the morning of the 16th,[1] and it was eleven o'clock a.m. before Ney, who was at Frasnes, received any orders at all; and as his own columns were not even then closed up (and it was entirely his own fault that they were not), it was 2 p.m. before he commenced his attack on Quatre Bras. This delay was fatal. Not only did it give time to the Prussians at Ligny to complete all their preparations for a desperate defence, but, what was far more serious (for the French!) it enabled the British, hurrying up from all quarters, to establish themselves in such strength at Quatre Bras that when at last Ney did attack that position, far from being able to get possession of it easily, as he and Napoleon had anticipated, he met with such a determined resistance that he found himself quite unable to make any detachment for the attack upon the Prussian right flank, which had been ordered, and which was now anxiously expected by the Emperor.

However, tired of waiting for Ney's co-operation, Napoleon, at about 3 p.m., launched his own columns to the attack of the Prussian position at Ligny. The fighting that ensued was of the most desperate nature, and the Emperor very soon realised that instead of the 40,000 men which in the morning he had estimated to be opposed to him, something like double that number had to be reckoned with. Consequently he became more anxious than ever about Ney's support, and sent him from the battle-field an urgent despatch, in which the following passage occurs: "Manœuvre at once to envelop the enemy's right, and fall with might and main upon his rear. His army is lost if you act with vigour. The fate of France is in your hands. Therefore, lose not an instant in making the prescribed movement but march direct on the heights of Brye and St. Amand, and contribute to a victory which perhaps will be decisive."

Now, mark how from the moment these lines were penned, Dame Fortune interposed her pleasure, and took the management of affairs into her own hands. The aide-de-camp who carried this despatch to Ney, happened on his way to pass the head of D'Erlon's corps (part of Ney's command), and showed it to Durutte, who commanded its leading division, and on his own responsibility ordered him to turn off at once to his right, and direct his march on Brye. This order Durutte obeyed. A little farther on the aide-de-camp overtook D'Erlon himself, who, with his staff, was riding in advance of his corps. He, on learning what had passed, at once rode off to join his command, sending an officer to inform Ney, and pressed the march on Brye, believing that in doing so he was only anticipating orders from Ney. About half-past five in the afternoon his corps

[1] "Had Napoleon set his troops in motion at 5 or even 6 a.m. on the 16th, the result of the day's fighting must have been very different. At a time when every hour was worth a reinforcement of 10,000 men, he allowed at least seven hours of daylight to slip by to no purpose."—"Decline and Fall of Napoleon."—*Wolseley.*

was observed approaching the battle-field of Ligny, *but not from the direction in which it was expected.* Now, at this very moment the Emperor had set his reserve in motion, the Imperial Guard, with the intention of deciding the struggle that was raging in his front. But, as luck would have it, D'Erlon's corps, when first seen, was mistaken for the enemy, and the Guard was halted while a reconnaissance was made to ascertain the facts. In two hours' time, word was brought back that the troops seen were D'Erlon's corps, and not an enemy. The arrested movement was then continued at 7.30, with the result that the Prussian centre was pierced and their army driven from the field. But the two hours lost by this contretemps made just this difference, that the battle, instead of being over at 7.30 in the evening, was not ended until 9.30, when night had set in, and darkness coming on, stopped pursuit, and prevented Napoleon from completing his victory, as he otherwise assuredly would have done.

In the meantime, Ney, hearing of D'Erlon's movements, hotly pressed by Wellington, and stung by his own unexpected repulse, peremptorily ordered him back again, so that the strange spectacle was afforded of a Marshal of France, with 20,000 men, receiving such contradictory orders that he spent the whole of this eventful day in marching backwards and forwards between the contending armies at Ligny and Quatre Bras, without ever getting near enough to be of material assistance to either of them! For before he could return to Quatre Bras to support Ney, the Duke, who by nightfall had about 30,000 men on the ground, against about 21,000 with Ney, had assumed the offensive all along the line, and had driven the French back as far as Frasnes, where he left them for the night, while his own troops bivouacked on the field which they had so bravely maintained.

I think, if you have followed me in this description, you will agree that it was a most extraordinary freak of fortune that produced such remarkable results. They say that "Providence is always on the side of the big battalions" but most assuredly this was an exception to the general rule. Napoleon had "the big battalions" on the 16th June, but fortune was certainly not on his side, and a chain of untoward circumstances deprived him of his numerical superiority at a critical moment in *both* the battles fought by him on this day, with the consequence that he was beaten in one, and though victorious in the other, he was unable, through the lateness of the hour at which victory was achieved, to reap any fruit from his success.

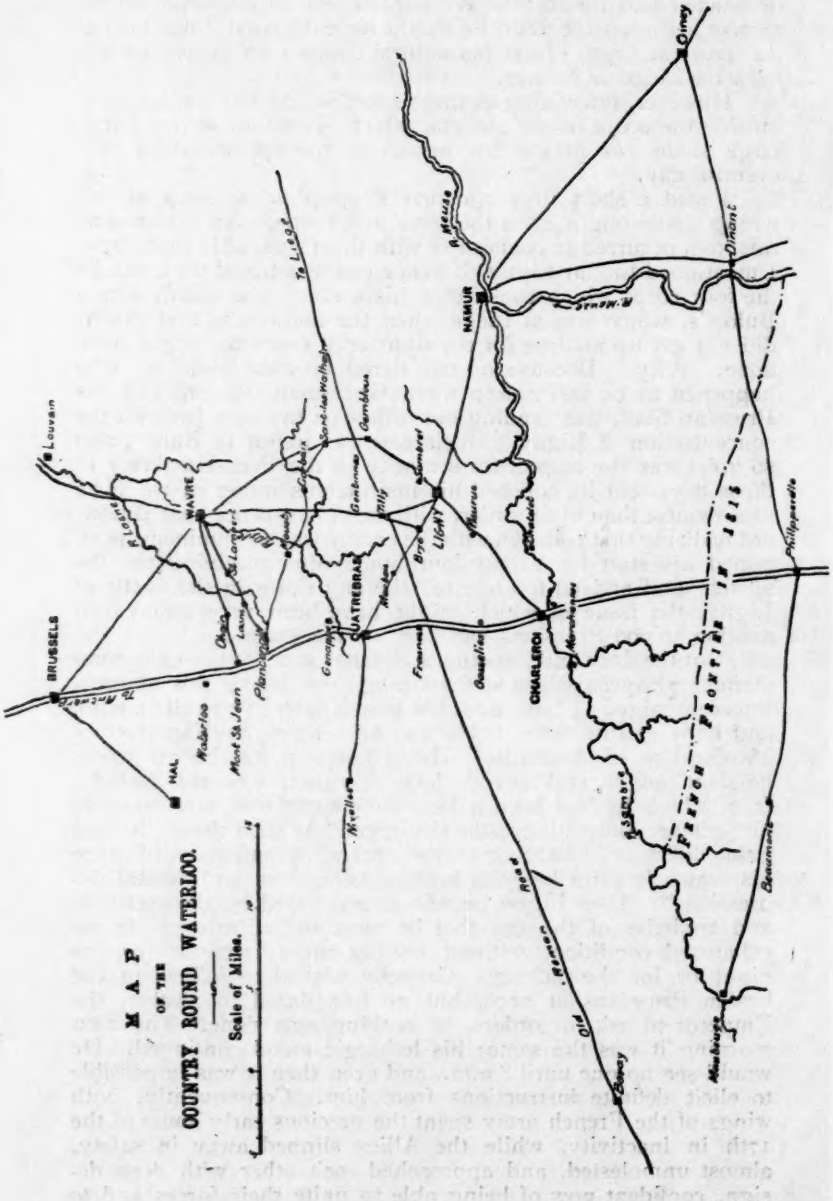
On the other hand, says an able and well-known critic (Ropes), "it cannot be seriously questioned that the result of the action at Quatre Bras would have been a victory for the French if D'Erlon's corps had not been taken away from Ney. It fact, one may safely conclude that the battle of Waterloo would not have been fought at all, had this corps not been turned aside by the unauthorised act of a staff officer,

because," he goes on to say, "it is altogether improbable that if Blücher had found that Wellington was in no condition to receive battle on the 18th, he would have deviated, after losing the battle at Ligny, from his natural course, which was to fall back on Liège or Namur."

However, interesting as these speculations may be, they are outside the scope of our subject, which is only to show what a large share was played by fortune in the operations of this eventful day.

I said a short time ago that sleep—that is, sleep at the wrong time—might affect the issue of a battle. An instance of this, too, occurred in connection with this memorable 16th June. I mentioned that at Ligny, Blücher had assembled three out of the four corps which constituted his army. The fourth corps, Bulow's, which was at Liège when the alarm was first given, did not get up in time for the fight as it certainly might have done. Why? Because no one dared to wake Blücher, who happened to be fast asleep when Gneisenau, the chief of the Prussian Staff, was sending out orders on the 14th June for the concentration at Ligny. Gneisenau was junior to Bulow, and so great was the respect for seniority in the Prussian Army in those days that he couched his instructions rather in the form of a request than of an order, with the consequence that Bulow, not realising that collision with the enemy was so imminent, postponed his start for twenty-four hours after receiving the despatch, and arrived too late to take any share in the battle of Ligny, the issue of which might have been very different if another 30,000 Prussians had been on the ground.

But the fiery and impetuous Blücher was not the only commander who was asleep at the wrong time during this momentous campaign. I have told you how Napoleon was ill in mind and body at this time. He was no longer the Napoleon of Marengo or of Austerlitz. He had grown fat, he ate more, he slept longer, and he rode less. Further, a painful malady, from which he had been a long time a sufferer, now attacked him oftener and with greater virulence. At such times "he had great difficulty in keeping awake, and when under its influence his drawn features bespoke both physical pain and mental depression." After Ligny he was so prostrated by the exertions and anxieties of the day that he went to bed at once, in an exhausted condition, without issuing any directions for the night or for the morrow. Grouchy wished to follow up the beaten Prussians at once, but no one dared to awaken the Emperor to ask for orders, so nothing was done. The next morning it was the same; his lethargic mood continued. He would see no one until 8 a.m., and even then it was impossible to elicit definite instructions from him. Consequently, both wings of the French army spent the precious early hours of the 17th in inactivity, while the Allies slipped away in safety, almost unmolested, and approached each other with deep design, confident now of being able to unite their forces and to confront the invader at last with every chance of beating him.


MAP
OF THE
COUNTRY ROUND WATERLOO.
Scale of Miles.
BRUSSELS
HAL
Waterloo
Mont-St-Jean
Ohain
Lasne
Plancenoit
WAVRE
R. Dyle
R. Lasne
St Lambert
Chapelle
Ste-Lie Walhain
Corbais
Grand Leez
Gembloux
To Liege
Sombref
Mazy
Bry
Ligny
Villers
QUATREBRAS
Marbais
Genappe
Frasnes
Gosselies
CHARLEROI
Marchienne
NAMUR
R. Meuse
R. Sambre
Dinant
Givet
Philippeville
Maubeuge
Beaumont
FRENCH FRONTIER IN 1815
Old French Road

Well may Vandamme have said to those around him: "The Napoleon whom we have known exists no more! Our success of yesterday will have no result!" Lord Wolseley declares in so many words that he believes the state of the Emperor's health to have been the primary cause of his final overthrow at Waterloo. He says: "I believe it was not so much the deep condition of the country after the heavy rain as a recurrence of this fatal malady on the morning of Waterloo, added, of course, to the fact that he did not expect Blücher's arrival on the field of battle that day, which caused him to begin the action so late, and so throw away, without purpose, hours which might have been employed in destroying Wellington before the Prussians could arrive. We know that during the progress of the battle itself he remained for hours seated motionless at a table placed for him in the open, often asleep, with his head resting on his arms; also, that when flying beaten from the field he suffered so much from drowsiness, it was with difficulty his attendants prevented him from tumbling from his horse. The more (he concludes) I study his grandly conceived plan of campaign for 1815, the more convinced I am that the overwhelming defeat in which it ended was primarily the result of bodily disease, and the failure of mental power which resulted from it at supreme moments when rapid and energetic decision was imperatively necessary for success."

Napoleon himself used to say: "*Health is indispensable for war, and nothing can replace it.*" It was the Fortune of War that in this last great struggle in which he was engaged, on which the fate of Europe, of the civilised world depended, the state of his own health should have been such a weighty factor in the scale against him.

I have shown you now how in the course of only two or three days many all-important issues were affected and decided by such apparently trivial incidents as an accident to a messenger, an order misdelivered or badly expressed, or by the fact of a commander being inaccessible because he was asleep, or unfit for work because he was ill. I might add to these examples of the Fortune of War in this campaign yet another, showing that even in the matter of the weather the fates were against Napoleon. Between two o'clock in the afternoon of the 17th, and up to about six on the morning of the 18th, the rain descended in torrents, and put the whole country under water; and, despite what Lord Wolseley has written (which I have just told you), there is plenty of evidence to show that one chief reason why the attack on the English position, which would have had a much greater chance of success had it been commenced at six in the morning, was postponed until nearly midday, was that the ground was so soft and sticky that it was difficult to manœuvre on it until the water had drained off. This long delay was, of course, of inestimable value in allowing the Prussians to arrive to take their pre-arranged share in the battle.

I must not tax your patience much longer. Had time permitted I should like to have told you how sudden floods in

rivers have contributed to victories and defeats, of which there were memorable instances in Spain in 1808, at Aspern and Essling in 1809, and in Silesia in 1813. In the first of these cases, a flood in the river Esla, which rendered it unfordable for twenty-four hours, was probably the salvation of Sir John Moore's army at the time.

I might also have given you, had time afforded, examples of the effect of sudden frosts, or sudden thaws, on the fortunes of an army. For instance, you would hardly believe, perhaps, that a fleet of ships could be captured by a charge of cavalry! Sir Evelyn Wood has not included the story, at all events, in his very interesting work, "The Achievements of Cavalry," which I cordially recommend you all to read. Yet it is a fact. It happened in 1794, when a French army, under General Pichegru, was engaged in the conquest of Holland. The winter of that year was the severest that had been known for a century past, and Alison writes: "To complete the wonders of this campaign, a body of cavalry and flying artillery crossed the Zuyder Zee on the ice, and summoned the Dutch fleet lying frozen up at the Texel. The commanders, confounded at the hardihood of the enterprise, surrendered their ships to this novel species of assailants!"

On the other hand, a sudden thaw has sometimes been as unfortunate for an army as a sudden frost. You have all no doubt read of the dreadful retreat from Moscow in the winter of 1812, and of the terrible sufferings of Napoleon's army amid the Russian frosts and snows. These fearful horrors culminated when the Beresina was reached, an unfordable river, across which the only bridge had been destroyed. "Never," said Napoleon, "was I placed in such a desperate situation. Pressed on all sides, I found my further progress barred by a river difficult to cross and defended by an entire army. My task was, with soldiers half dead from cold and hunger, to conquer obstacles which would have terrified the best organised army. Fortune seemed to take pleasure in heaping horrors upon us during this fatal retreat. The severe cold which had come on just before we reached Smolensko had about the time we quitted Krasnoi yielded to a milder temperature, and the ice on the Beresina was broken up. This was a double misfortune. The Beresina, had it been frozen hard would have permitted us to cross *en masse* and crush the army of Tchichagof; but, on the contrary, filled with drifting blocks of ice, the construction of bridges was greatly impeded, and the floating masses, coming down with violence, endangered the bridges when established."

You see, therefore, that this was an occasion when an unexpected thaw was the most unfortunate thing that could have happened; and history teems with similar instances. But I have detained you already too long, and will therefore mention only one more, which shall be the last. It is an example of the winds and the waves fighting in our favour, as they have done on more than one fateful occasion.

In December, 1796, the French sent an expedition to Ireland. It consisted of seventeen sail of the line, thirteen frigates, and numerous transports which carried some 25,000 men, destined to land in Bantry Bay and co-operate with the Irish malcontents of the day, whose ardour, stimulated by the success of the French Revolution, led them to hope that the time was ripe for breaking off all connection with England and setting up a Republic of their own on the model of France. However, from the moment of leaving harbour (Brest) nothing but disasters were encountered. Violent tempests prevailed throughout the time the ships were at sea. After losing one battle-ship and several transports, a battered remnant, after eight days' struggling reached the appointed rendezvous; but amongst others, the frigate conveying General Hoche, the commander of the expedition, was driven off her course, and did not arrive at all. On board this frigate was not only the Commander-in-Chief, but also the field artillery of the expedition, and the treasure for its expenses. The second-in-command, Admiral Bouvet, did not, in the circumstances, venture to attempt a landing. He waited for some days, and then decided they should make the best of their way back to France. This they did eventually, but not without losing several more ships. Hoche himself, after escaping from a thousand perils, got back to France too; and that was the end of this expedition, of which it was said at the time that " the goodness of Providence to us has exhibited a second Armada," and of which it was written once more: "*Efflavit Deus, et dissipantur.*"

In conclusion, it only remains to ask if any useful lesson is to be learned from these experiences of the past? I think we may answer "Yes." And the lesson is, that, recognising the fact that the future, where the operations of war are concerned, must always be full of " precious possibilities," it behoves each and all of us, in our respective stations, to fit ourselves by reading, by reflection, by observation, and by practical training of every kind that we can arrange, to take advantage of, and to profit by, the gifts of Fortune when she offers them to us; and on the other hand, to endeavour to maintain ourselves bravely, and to try to do the thing that is right, when she averts her face, and the circumstances are adverse and difficult. To trust blindly in Fortune is, of course, as foolish a mistake as to ignore her existence altogether. "Fortune," said the great Emperor who trusted in the fickle goddess not a little, "Fortune is a woman. Avail yourself of her favour while she is in the humour, and beware that she does not change through resentment at your neglect." That, I think, is sound advice: avail yourself of her favours when she smiles, and do your best to conciliate her when she frowns; be prepared for either event; and remember always that—

"There is a tide in the affairs of men,
Which, taken at the flood, leads on to fortune;
Omitted, all the voyage of life
Is bound in shallows and in miseries."

Captain A. F. BECKE, late R.F.A. :—As I understand the lecturer, he has taken three very different kinds of phenomena—to wit, psychic, material, and cosmic—and grouping them arbitrarily together he appears to deplore that no general can really control all three. Of course, the weather is beyond the control of man, and was even outside Napoleon's control; only the legendary Joshua was able to stop the sun, but Napoleon lacked this power, or it would have fared badly for Wellington on the evening of 17th June, 1815, when the Emperor reached Rossomme. Doubtless because Napoleon had not taken so much care as usual in 1815 to eliminate Fortune from the game, she played her part of the hand—the weather—against him. For surely it was leaving too much to Fate to take the field with such wing commanders as Ney and Grouchy, when Davout and Murat were available. However, it will repay us best to consider what means Napoleon introduced to eliminate Fortune so far as he could. And the system he gradually evolved—he first used it in 1806—was "the battalion square" formation for the advance. Now at last Fortune's caprices were nullified, and all small mistakes and errors made in the Grand Army practically cancelled one another; and the system ensured that once the enemy's main army was encountered it was held fast whilst the Emperor proceeded to revolve his masses around the fixed point, and thus concentrate superior numbers at the right time and place, thereby placing himself in a position to deal the knock-out blow. And if we are to understand this campaign of 1815 aright we must study it again, and apply this doctrine to it. Then, and then alone, shall we understand how Napoleon dealt with what he understood so well —the Fortune of War. For the chance came in this campaign on 17th June for Ney to hold Wellington fast early in the morning, and leave the Anglo-Dutch left open to the blow of Napoleon's masses. With Blücher out of the game for the day, the result would not have been in doubt for a moment, and then we should all have better understood the relative importance of what are at best but incidents in the campaign : the accident to Vandamme's orderly (other orderlies in other campaigns had failed to arrive), the wanderings of D'Erlon on 16th June (other corps in other campaigns had missed the decisive field), and last but not least, the "sleeping sickness" from which some people still think that Napoleon suffered in 1815, for these legends die hard. Let us briefly consider one or two of these points. Napoleon knew all about "the Fortune of War," and by advancing in "battalion square" did control Fortune so far as was humanly possible. As Colonel Maude explained to us in this very theatre fourteen months ago, this system was devised to render the French Army, the Grand Army, to use that lecturer's own expressive words, "fool proof"; in other words, to eliminate Fortune. In the campaign of 1815 the lecturer to-day makes too much of the incident with regard to Vandamme, for it appears to me to be exactly described by Napoleon when he called it "an unfortunate incident," and not a fatal mistake or fatal happening. Napoleon's system of strategy was especially introduced to annul such incidents, and as a matter of fact, I believe all writers agree that Napoleon on the 16th of June had the game entirely in his own hands (which shows the small value of this incident), and he also had the campaign in hand on the 17th of June; and if Ney had at once, on that day, taken up the duty of "general advanced guard," the Marshal would have fixed Wellington at Quatre Bras, and allowed Napoleon to swing in his masses and deal the decisive stroke on the 17th of June, and then there would have been no Waterloo at all, and we should have heard less of the Emperor's lethargy, and the big storm would have come too late to save Wellington.

We have had a very dismal picture drawn for us of Napoleon in this Waterloo campaign. It is, of course, very hard to understand the campaign if one assumes that Napoleon, the embodiment of energy and mobility, still retained all his old powers. But as a matter of fact, he did put in a really marvellous performance. With regard to his sleeping, on which so much stress has been laid, the Emperor actually did sleep only twenty hours out of the ninety-six which the campaign lasted, and all the facts prove that he was actually in the saddle over thirty hours. That is hardly the performance of a physically broken-down man. Again, with regard to his sleeping during the Battle of Waterloo, I have read a great deal about Waterloo, but I have never found a single writer who could prove, or who attempted to prove, that Napoleon slept at a *critical* hour in that battle. Also, other generals have slept in other battles. I believe Wellington slept at Salamanca, but was it not a British victory; and Napoleon certainly slept at Jena and at Wagram, and were they not French victories? If Napoleon did not sleep at a critical hour at Waterloo, it mattered little, for he was wisely resting the brain, which always excels after rest. Further, all that this incident would prove is that Napoleon in 1815 no longer possessed his former limitless powers of endurance, and that he really lacked his former exuberant energy. As for his belief in Fortune, I found two remarks of his in a book which I happened to be reading some time ago, and they run as follows: "If you let Fortune slip to-day you must not expect to find her again to-morrow." And the other saying was (they are both said to have been uttered in 1796): "Fortune is a woman; the more she gives me the more I will demand of her." That appears to me to show the trend of his mind, and that his attitude was not one of merely blind superstition, but the result of a well-balanced and deeply-calculating mind; and it was calculation that led him to the evolution of "the battalion square" to ensure the elimination of Fortune, and the nullifying of her shafts in every single way. The "battalion square" is not just a theory which a few faddists in England and the French General Staff subscribe to, but it is based on facts which are to be found in the *Correspondance,* and in the documents of no campaign is it made so clear as it is in the letters which deal with this Waterloo campaign; and the idea may be found quite clearly stated in the letter to Ney written on the 16th June, 1815, from Charleroi.

The CHAIRMAN (General Sir W. Nicholson):—I have a very few words to say about General Hutchinson's admirable lecture. In the first place, I think that General Hutchinson has attached rather too great importance to Luck and Fortune and Fate and too little importance to our own efforts to take advantage of Luck, and to repel the adverse strokes of Fortune. As regards Fate, which is a most powerful agency, I think the less we say about it the better, but simply touch wood and whisper: "*Unberufen.*" With regard to the question of Luck, the whole essence of luck was summed up about twenty centuries ago by a Latin poet in very succinct terms. Ovid said:

> "Casus ubique valet. Semper tibi pendeat hamus;
> Quo minime credas gurgite, piscis erit,"

which, translated, is: "Luck or chance is strong everywhere. Therefore always have your hook ready, and in that eddy where you least expect it, you will catch your fish." That is practically the essence of luck or chance. Luck or chance is common, and is strong everywhere; therefore it is the duty of everybody, and especially the duty of officers in the Army, by study and by the development of their physical and moral qualities, to be ready

to take advantage of the many opportunities which occur to everybody in his military career sooner or later. Then the Romans separated fortune from luck. Fortune they regarded as an attractive goddess, who bestowed her favours capriciously on her worshippers. There was another Latin poet who summed up the whole essence of fortune in two lines; I mean Juvenal, who said:

"Nullum numen habes, si sit prudentia. Nos te,
Nos facimus Fortuna deam, caeloque locamus,"

which, translated, means: "Thou wouldst have no divinity, oh Fortune, if we only possessed foresight. It is we, by our lack of foresight, that convert thee into a goddess and exalt thee to the skies." In other words, if we possess prudence and foresight in our campaigns and the ordinary affairs of life, according to Juvenal, Fortune will smile upon us. In reading the various illustrations given by General Hutchinson, I do not think, if I may venture to say so, it was the Fortune of War that made Vandamme go and sleep in some place where he could not be found; I think it was his own carelessness. I think it was his own carelessness that he did not leave a suitable staff officer to say where he was to be found. I admit that sleep is very attractive to everybody, and the mind is perhaps more active after sleep than before sleep; but still, if events are happening in the battlefield or otherwise, surely the Commander-in-Chief should have some responsible chief of the staff or other staff officer and say to him: "I am going to sleep for three or four hours; I will tell you my plan of action, and I authorise you to give the various orders that may be necessary." If the command is so absolutely concentrated that when a Commander is asleep nobody else can give the orders, all I can say is I do not think that army is well commanded or its staff well organised. About Fate I fear to speak, because it is too serious a subject, but I have spoken of Luck and Fortune. As regards the crowning victory which might have been won by Napoleon if his health had been as good at it was before, if all his plans before and during the Battle of Waterloo had succeeded, if that thunder storm had not taken place—well, I am content to leave that to the judgment of mankind, and especially to the common-sense of the British nation, which has a proverb that "The proof of the pudding is in the eating." The only other task I have to perform is to ask you to give a most cordial vote of thanks to General Hutchinson for his most admirable lecture.

Colonel LONSDALE-HALE:—As the oldest member of the Council present, it is my pleasant duty to ask you to accord a hearty vote of thanks to the Chief of the General Staff, General Sir William Nicholson, for his presence here to-day. Some of you gentlemen know how onerous the duties of the Chief of the General Staff are, and there is no doubt that General Nicholson in so kindly coming here to-day has shown that he takes a very great interest in the Institution. I have been the Chairman of the Library and JOURNAL Committee of this Institution for I do not know how many years, and I have seen the different ways of working with the War Office and the Admiralty, and, Sir William, owing to the way the War Office meet us and the way they help us in every possible manner, both in the JOURNAL and elsewhere, and the valuable assistance we receive from your representative, Colonel Haldane, this Institution benefits immensely by the kindly and friendly relations which the War Office now allows us to hold with them. I assure you, Sir, that we greatly appreciate your kindness in coming here to-day, and thank you heartily for so doing.

THE COMMUNICATIONS OF A DIVISION IN THE FIELD.

Notes of a Lecture Delivered in March, 1909, by Colonel F. J. DAVIES, C.B., General Staff, 1st Division.

1. Means of Communication.

EXCLUSIVE of Staff officers, there are three means by which communication is maintained between the units of a division. They are:—

1. The wire (telegraph or telephone).
2. Visual signalling.
3. Orderlies, foot, mounted or cyclist.

To maintain communication by these means is the duty of the divisional communication company. I may as well say here that, as will appear later on, the name "Communication Company," so far as the present temporary organisation is concerned, is somewhat misleading, since the four sections composing it are never brought together as a company, nor do they ever work together under one man's control. If, as is to be hoped, the communication troops are eventually put on a permanent basis, the company organisation will probably be adopted.

Now, each of these three means of communication has its possibilities, its limitations and its peculiarities, all of which must be taken into account in determining the principles on which its use is to be based.

(1) *The Wire.*

With the wire, the running end—that is, the end which is sent out to form the advanced office—must originally start from the place where the standing end is, namely, the base office. Similarly, unless special arrangements are made, the running end must return to the base office in the process of rolling up. You cannot reel up a cable as you do a salmon line, so unless another wagon or pack animal, as the case may be, is available, the vehicle which laid the cable must in reeling up return by the road it came.

For this reason the operators at the distant office are always found by the unit which finds the base office; as a matter of fact they accompany the wagon or mule as it lays the cable. No other method is possible. Responsibility for establishing communication by wire, therefore, rests solely with the unit to which the wire belongs.

It is necessary, too, that the direction in which the cables are to be run out, *i.e.*, whether from the superior to the subordinate or *vice-versâ*, should be laid down. It has been decided that normally they should be laid from the superior to the subordinate; that is, they are always laid to the front, so to speak, which is the only possible arrangement if an advance is afterwards to be made. Thus the normal use of the Army cables is to connect Army Headquarters with divisions; that of the divisional cables to connect Divisional Headquarters with brigades, and so on. I say "normal" because the exigencies of the situation often demand a departure from this rule, at any rate, with the infantry and artillery telephones.

Another peculiarity of the wire is that it cannot be used unless the intervening ground is passable and secure from the enemy. Nor is it the enemy alone that we have to fear, as the cables are often broken by our own troops, especially at night. It is known, however, at once if a break occurs, so that there is never the slightest doubt as to whether a message has got through or not, as may be the case if it has been sent by orderly.

Moreover, in the case of the divisional cables, the line can usually be repaired in less time than it takes a mounted man to traverse the whole distance, as there is a mounted line man at each end. The actual repair of the cable can be done in a couple of minutes.

The wire is unaffected by obstacles to view, such as hills, trees, fog, darkness, rain or snow; it does not depend on the brightness of the sun. The telegraph or telephone operator can do his work as efficiently under cover as in the open; he does not disclose his presence to the enemy, lying as he does on the ground with the receiver strapped to his ear.

The telegraph is unquestionably both rapid and accurate; indeed the R.E. operators are so highly trained that a very high standard can be attained. The average rate is 18 words a minute, and mistakes are rare.

The telephone, if the operators are carefully trained, is second only in rapidity and accuracy to the telegraph; it is superior in both respects to visual signalling, and in rapidity, except over short distances, to the orderly. It may here be mentioned that telephone operators require very careful training. Unless a recognised system of sending and receiving is strictly adhered to, inaccuracy and loss of time will result. The system adopted is similar to that used by the Post Office.

The wire is particularly adapted to maintaining communication with a body of troops on the move. Wherever or whenever the travelling station halts, communication is at once re-established. Indeed, with the telegraph, communication is never lost, as the operator sits on the wagon with the receiver strapped to his ear, and can be called up at any moment.

It has been said that the use of the cable tends to tie commanders down unduly to one spot. It is doubtful if this statement is correct. Indeed, it may fairly be argued that the con-

trary is the case. Long before anyone ever dreamed of using cables in the field we were taught that the position of headquarters must not continually be moved about; that the place to which reports are to be sent must be changed as seldom as possible, the reason being that all such changes are liable to produce disorder. Now, if the cables are skilfully laid a general can move his headquarters with much less dislocation of his communications than was the case when messages were carried by staff officers and orderlies. There is nothing to prevent a General going forward himself to reconnoitre provided he leaves a responsible officer to represent him at Divisional Headquarters.

(2) *Visual Signalling.*

In the case of visual signalling there is no necessity to send forward *personnel* to form the distant station. Each unit finds the *personnel* for its own end of the line.

There being no cable to lay, signallers are undeterred by the impassability of the ground, whether due to physical obstacles or to the presence of the enemy. On the other hand, the nature of the country may make signalling so difficult and so wasteful of *personnel* as practically to prohibit its use; or atmospheric conditions may render it impossible. In the latter case it is beyond the power of man to "repair the line." Signallers are often called upon to expose themselves, and communication will be interrupted by casualties. Indeed, the enemy's fire will often make it impossible. Again, an indiscreet signaller will give important information to the enemy by merely waving his flag or showing his light, or the enemy may read his message. During night operations visual signalling is usually out of the question.

In suitable country, skilfully handled signallers may be of great use in maintaining communication between moving bodies of troops, particularly when the situation has not developed sufficiently to justify the cables being laid out. On the other hand, if the country is unfavourable, a very short move may dislocate the signalling arrangements, which would not be the case with the cables if they are carefully laid.

(3) *Orderlies.*

The responsibility for this means of communication rests solely with the unit despatching the message.

Except over short distances, or when the message is of great length, communication by orderly is slower than by wire or by visual signalling. It is the most accurate of all means, provided the orderly reaches his destination; but many things may prevent this: he may dawdle, he may be shot, his horse may go lame, his bicycle may be broken, he may lose his way. Military history abounds with instances of disasters caused by a messenger failing to reach his destination. The worst of it is that

until the orderly returns and produces the receipt you never know whether the message has got through or not.

Communication by orderly can, however, be used when other means fail. A bold and skilful messenger will make his way even through the enemy's lines when the use of the wire or of visual signalling is impossible.

Communication by orderly is wasteful of men and animals. There is no comparison between the number of hours that an operator can continually be sending messages and the number of hours that a man or a horse can continually be carrying them.

I believe, too, that it is harder to train a good orderly, who can be relied upon to carry messages with certainty under all circumstances, than to train a good operator or a good signaller.

Such are the available means of communication. It is by skilful use of these means, each in its proper sphere, using sometimes one, sometimes another, sometimes, indeed, using all three simultaneously, that an efficient system of communication is established.

II. Personnel and Materiel.

Divisional Headquarters.

The communication unit at Divisional Headquarters is known as the Divisional Section. Its nucleus is the Divisional Telegraph Company, to which is added *personnel* for signalling and orderly work taken from the infantry and artillery units of the division. These additional men are all mounted either on horses or on bicycles, and are all trained both as signallers and as orderlies. The number this year is sixteen. These men join the Telegraph Company early in the training season and remain with it till after manœuvres.

The telegraph portion of this section consists of three cable detachments. Each cable detachment has one cable wagon and one light spring wagon. The cable wagon carries 8 miles of cable on four drums, weighing 85 lbs. to the mile. A cable wagon can lay or take up line at from 2½ to 3½ miles an hour, and for short distances at even 8 to 10 miles an hour. Two additional miles of cable are carried in the light spring wagon, which also carries the rations, etc., of the detachment, there being no second line transport. Each cable detachment can establish three telegraph offices, namely, a base office, an intermediate office, which can be tapped in at any point in the line, and a travelling office. The total length of wire carried by the three detachments is 30 miles.

It has been proposed to give each cable detachment an additional reel of light cable, which can be run out by hand, so that communication can be kept up even if the ground is impassable to wheels.

The section is commanded and trained by the R.E. officer in command of the Telegraph Company. This is a great advance on the old system, under which the R.E. officer controlled the telegraphs, the divisional signalling officer the signallers,

and the staff the orderlies; now they are all commanded and trained by one man.

The cables of this section can be used either as telegraphs or as telephones, there being a telephone attached to each telegraph instrument. The telegraph should always be used for sending orders and reports. The use of the telephone should be restricted to occasions when the G.O.C. or his General Staff officer wish to discuss the situation personally with a subordinate commander.

The cables of this section are used for communication with the subordinate units of the division; the signallers form stations for communicating with subordinate units and with other divisions, etc., as may be necessary; all messages sent by orderly are carried by men of the section.

Infantry Brigades.

A communication section is formed in each infantry brigade, the *personnel* being taken entirely from the battalions of the brigade. It is commanded and trained by an officer of the brigade, selected by the brigade commander, and designated the "Brigade Communication Officer." The responsibility for training a brigade section rests entirely with the brigadier.

Each brigade section has two telephone detachments. A telephone detachment consists of one non-commissioned officer and five men, and is provided with three miles of cable, carried by a pack animal on six drums, and four portable telephones, which can also be used as buzzers, carried by the men. Each detachment has one driver, who is also trained in telephone duties.

One of the pack animals carries a commutator for use at the base office, by means of which one telephone instrument can be connected to several lines.

By using a pack animal instead of a wheeled vehicle, the line can be laid wherever a man can crawl. For signalling and orderly work there are one non-commissioned officer and eight men mounted on bicycles. A light cart is provided which carries spare stores, including two miles of cable, as well as the rations, etc., of the detachment. Thus the total amount of wire carried by an infantry brigade is eight miles. It weighs 20 lbs. to the mile.

The telephones are used normally for establishing communication between brigade headquarters and the battalions of the brigade; the signallers form stations for communicating with the battalions of the brigade, with other units of the division, and with divisional headquarters; the orderlies carry all messages emanating from brigade headquarters.

Artillery.

Each artillery brigade is provided with a cable cart carrying four miles of cable weighing 40 lbs. to the mile, and has six portable telephones.

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Each artillery brigade is provided with a cable cart carrying four miles of cable weighing 40 lbs. to the mile, and has six portable telephones.

Each battery has 1,080 yards of light cable, carried by two mounted men, each of whom carries a telephone instrument.

The Totals for a Division are:—

Unit.	*Cable (in miles).*	*Instrum'ts.*
Divisional Headquarters ...	30	9
3 Infantry Brigades	24	24
4 Artillery Brigades	16	24
12 Batteries	7 (about)	24
	77	81

The Divisional Communication Officer.

In addition to the officers already mentioned, there is in each division an officer of the rank of major or captain selected from one of the units of the division and named the Divisional Communication Officer. This officer supervises the training of the Divisional Section. He pays periodical visits to the Brigade Sections with a view to assisting brigadiers in maintaining a uniform system throughout the division.

When the present system was first started, it was thought by some that the divisional communication officer should command all four sections, and be responsible for their training and even for their work in the field. This would have taken away from brigadiers a responsibility which should be theirs alone, and would have resulted in their looking on the communication section of the brigade as something outside their ken. It would have been fatal to the efficiency of the communication troops, since, as I shall endeavour to show presently, it is essential that generals and staff officers should have a thorough knowledge of the work. I am glad to say, however, that wiser counsels prevailed.

In the field the divisional communication officer controls all communications between divisional headquarters and subordinate units and with other divisions, etc.

III. Tactical Handling of Communications.

I will first deal with the duties of the General Staff, in which, in the case of an infantry brigade, the brigade major must be included, and the communication officer. I purposely couple the two together, as they must work in couples.

I wish to take this opportunity of impressing on everybody here to-day how absolutely essential it is that staff officers should thoroughly understand the tactical handling of communications. Just as every infantry general should know what he has a right to expect of his artillery, though he need not know how to set a fuze, so every general and every staff officer should know the limitations and possibilities of the different means of communi-

cation, though there is no necessity for either of them to know a dot from a dash.

It is equally important that the relations between the staff officer and the communication officer should be of the most intimate kind. The staff officer must be hand in glove with his communication officer, who is his most important subordinate. He must take him completely into his confidence and give him the earliest possible information of all intended movements and of the probable course of events, so far as they can be foreseen. He must always be ready to help him with advice.

When I was asked to deliver this lecture it was suggested that I should approach the subject from two points of view, namely, that of the staff officer and that of the communication officer. I can only say that if the relations between the staff officer and the communication officer are what they should be, their points of view will be identical. They must act in perfect accord. The difference between their duties is one of degree only, the communication officer devoting his whole time to communication work and dealing with details, while the staff officer indicates generally the requirements of the situation.

It was further suggested that I should describe the difficulties the communication officer experiences in complying with the requirements of his general. Of course, the communication officer has many difficulties to contend with; many of them I have already indicated in describing the different means of communication. Wires will break at inopportune moments, orderlies will lose their way, fog will come down and make visual signalling impossible. All these misfortunes are every-day occurrences, and the communication officer must be ready with remedies for them all; but as regards difficulty in complying with the requirements of his general, I think that depends more on the general and the staff than on the communication officer himself. If the communication officer is treated as I have suggested that he should be treated, then his general will share his difficulties with him; but if, on the other hand, neither the general nor his staff understand how to handle their communications, if they do not take the communication officer into their confidence, if, without informing him of the probable course of events, they ask him to perform impossibilities, if they think it is sufficient to say vaguely in orders: "The communication officer will maintain communication with all the units of the division," then his path will be thorny, his difficulties will be many, and the communications will most certainly be bad.

Before considering the tactical handling of communications it must be explained that a communication section forms part and parcel of Divisional or Brigade Headquarters, as the case may be. It camps with headquarters, it marches with headquarters; it must always be at hand. This is so well understood in the division to which I belong that the communication section is never mentioned in orders. The position of head-

quarters is indicated, and everybody knows that it is there that the communication section will be. We should as soon think of putting in orders that the communication section will march in rear of Divisional Headquarters as of saying that the General Staff Officer will accompany the G.O.C.

I will now deal separately with each means of communication.

As regards orderlies, there is little to be said; their tactical handling calls for no special remark.

As regards visual signalling, the golden rule is that the signallers of all sections must always be on the lookout to communicate with each other and to pick up new stations as they are opened.

I believe that it has been stated that satisfactory results cannot be obtained unless signalling is carried out on a prearranged plan, carefully worked out beforehand. It is true, no doubt, that this method will produce the best results, as will be the case with any other military operation; but just as we must train our troops to adapt themselves to the unexpected, so must signallers be trained to work under every variety of circumstance. It is impromptu signalling that is often the most valuable, and once communication officers grasp this, it is remarkable how skilful they become in opening up communication without any pre-arrangement at all.

We now come to what is by far the most important part of the communications, namely, the cable, and it is especially with regard to the cable that a perfect understanding between the staff and the communication officer is so necessary. I do not propose to discuss the question of the communications in a carefully prepared defensive position, nor in the case of a methodically planned attack after careful reconnaissance. It will be more instructive to deal with an encounter battle or a running fight, either of which tries the skill of the communication officer to the utmost.

Certain principles must be observed:—

1. *Never be in a hurry to lay out your cables.* Remember that once you have committed yourself to certain lines of communication they cannot be altered without loss of time and waste of material. The cables should never be laid out until it is evident that you are in for a battle, until the situation has developed sufficiently to enable you to form some idea of the probable course of events, and until you can decide on a more or less permanent position for headquarters.

2. *In deciding how you will lay out your cables, always consider possible developments and possible moves of headquarters.* This is very important. It should be a point of honour with the staff and the communication officer to anticipate the general's moves, so that he can alter his position without losing communication. This can only be done by exercising the greatest care in selecting the routes by which the cables are laid. There are various ways in which communication can

be re-established when a move of headquarters has been made. If possible one always tries to make use of the lines which have already been laid, in which case communication is re-established either by going to a station which is already in existence or by tapping in at any suitable point on one of the existing lines. (Plate I.) If this is impossible or inconvenient a fresh line must be laid, the wagon or pack animal following the general to his new position, laying the cable as it goes. In all these cases communication from the new position passes through the original base office.

A brigade commander by moving up his telephone cable and attaching an instrument to the wire by means of a safety pin can move to the front without ever losing communication either with the firing line or with his divisional commander.

3. *Always try to keep some cable in reserve.* This holds good with communications as it does with any other tactical operation, as will be seen by the foregoing remarks. It is essentially important if a move of headquarters is likely. As a rule with a brigade attacking it is sufficient if brigade headquarters is connected with one of the leading battalions, keeping one telephone detachment in reserve. This reserve detachment may prove invaluable in establishing communication with supporting artillery. In the same way the divisional communication officer will always try to keep one cable cart in reserve at the beginning of an action. It is therefore essential that economy of material should be studied, and that each cable should be made to serve as many units as possible; thus it is often possible to tap in a station for artillery on a cable laid for an infantry brigade.

4. *Take every opportunity of reducing the length of your wires and reeling up superfluous cable.* This can often be done as the action progresses, and should always be done if possible after a move of headquarters, during which the reserve cable has been used up, so as to form a fresh reserve. (Plate IV.)

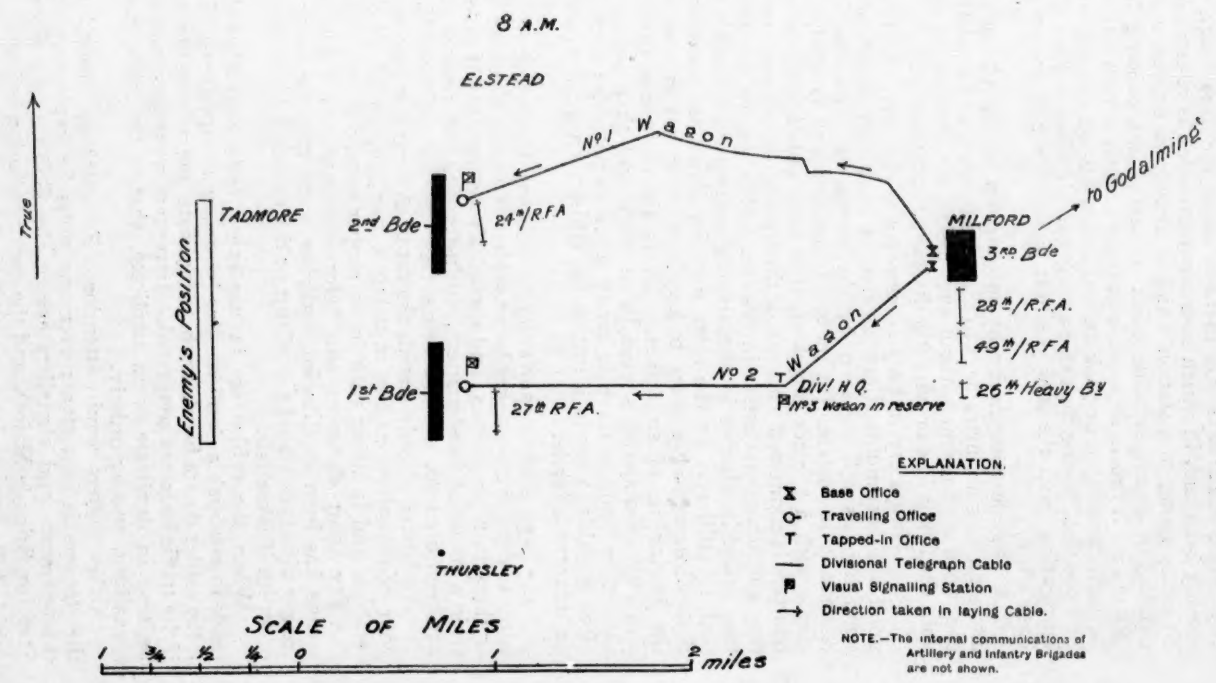
As I have already stated, the art of getting the best out of your communications lies in using a combination of all three methods and in using each in its proper sphere.

For short distances and before communication by other means has been established, orderlies alone may be used; for longer distances visual signalling or the cables, falling back on orderlies if these fail.

When the cables are in use every endeavour should be made to establish a duplicate line by means of signallers. Even if the cables do not break down, a duplicate line relieves the cable if the traffic becomes congested. Important messages may even be sent in duplicate or in triplicate, that is by cable, visual signalling, and by orderly.

Other matters require attention. For instance, discipline at the stations is important; everyone must be kept away from the operators and signallers except the G.O.C., the General Staff (or Brigade Major), and the communication officer. The

Plate I.


8 A.M.
ELSTEAD
True
TADMORE
Enemy's Position
2nd Bde
24th/R.F.A
No 1 Waggon
MILFORD
to Godalming
3rd Bde
28th/R.F.A.
49th/R.F.A
26th Heavy Bty
No 2 Waggon
Div! H.Q.
No 3 Waggon in reserve
1st Bde
27th R.F.A.
THURSLEY
SCALE OF MILES
1 ¾ ½ ¼ 0 1 2 miles
EXPLANATION.
Base Office
Travelling Office
Tapped-in Office
Divisional Telegraph Cable
Visual Signalling Station
Direction taken in laying Cable.
NOTE.—The internal communications of Artillery and Infantry Brigades are not shown.

personal use of the telephone should be restricted to the same officers. Even so, it should be used in this way only when it is necessary to discuss matters personally with a distant commander. For the transmission of orders it is better in every way to leave the message to be dealt with by the operators. The writing of messages requires practice, as much time is saved if they are written in a concise form. In the 1st Division we have eliminated all such expressions as "G.O.C.," "G.S.," "Headquarters," etc. Our messages are addressed to "First Brigade," "Second Brigade," etc., from "First Division." This saves words, and no misunderstandings can possibly arise.

We always put the place and hour of despatch last, thus: "1st Division, Frimley, 10.35 a.m." You may begin writing your message at 10 a.m. at Camberley and finish at 10.35 a.m. at Frimley. It is essential to show the hour at which the message left the sender's hands and the place where he was when he sent it off.

We write all messages on telegraph forms. The greater part of the messages go by wire, and while the telegraph form should always be used for messages sent by telegraph or telephone, it does as well as any other piece of paper for messages sent by orderly. These forms are bound up in books provided with carbon paper, which are carried by a man of the Communication Section, who follows the General Staff officer whereever he goes. This man is trained to write messages from dictation; he also sees to the proper numbering of the messages and to the place and time being properly filled in. He carries the file of messages received.

Explanation of Plates.

Plates I. and II. show the communications actually established in the course of operations which took place last year.

PLATE I.

The division was advancing from Godalming. In the first instance a double base office was established at Milford, from which Nos. 1 and 2 wagons followed the 2nd and 1st Infantry Brigades respectively. Shortly afterwards the G.O.C. decided to move forward and an office for Divisional Headquarters was tapped-in, as shown in the Plate. As, however, it was necessary to maintain communication with the artillery and infantry units, which were ordered to remain at Milford until the situation developed further, the base offices at that place were kept open, messages for the 2nd Infantry Brigade being transmitted through them.

PLATE II.

By this time the action had become general, and the troops at Milford had been ordered to the front. The base offices at

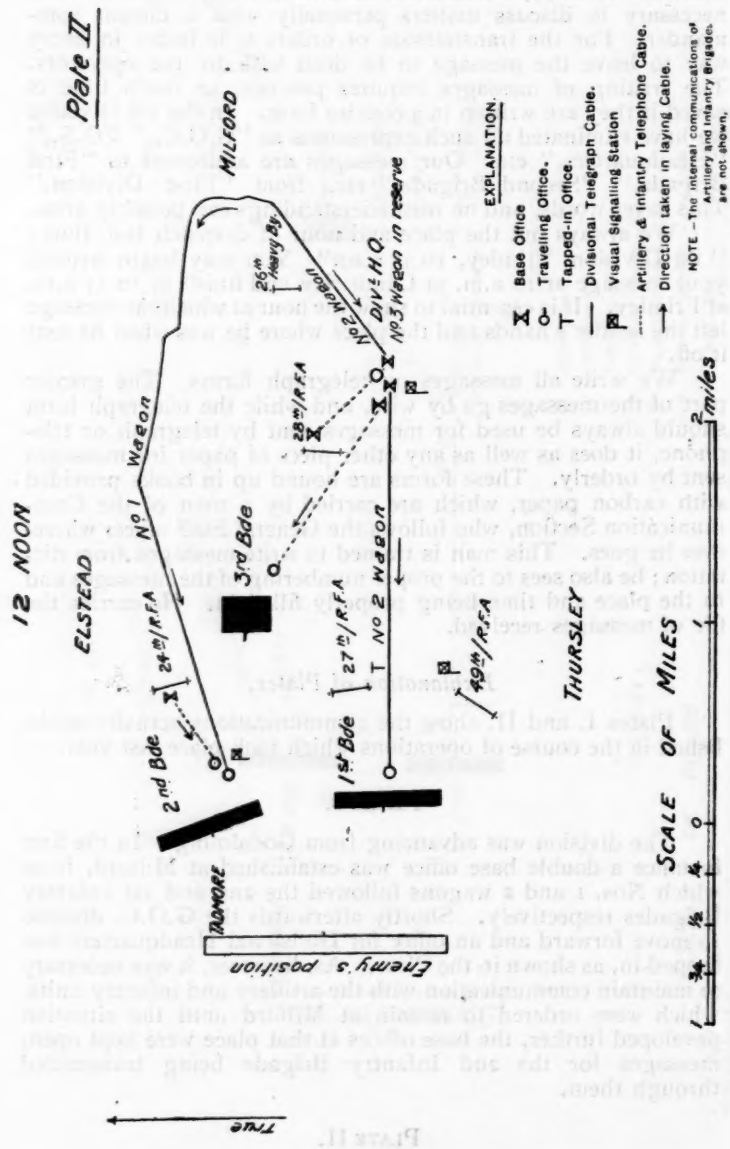


Plate II
12 NOON
ELSTEAD
MILFORD
No 1 Wagon
2nd Bde
24th/R.F.A
3rd Bde
28th/R.F.A
26th Heavy Bty
No 2 Wagon
DIV.H.Q.
No 3 Wagon in reserve
27th/R.F.A
T No 2 WAGON
1st Bde
49th/R.F.A
THURSLEY
ROMORE
Enemy's position
SCALE OF MILES
2 miles
True
EXPLANATION.
Base Office
Travelling Office.
Tapped-in Office.
Divisional Telegraph Cable.
Visual Signalling Station
Artillery & Infantry Telephone Cable.
Direction taken in laying Cable.
NOTE.—The internal communications of Artillery and Infantry Brigades are not shown.

Milford were accordingly closed, and the wires were joined. As it was evident that a further move of Divisional Headquarters was unlikely for the present, the tapped-in station was removed, the cable was cut, and two base offices were established, communicating with the 1st and 2nd Infantry Brigades.

It was considered desirable still to keep one wagon in reserve, so none was sent to the 3rd Infantry Brigade; but as the Brigade passed it was ordered to drop a telephone station at Divisional Headquarters. Being in second line the Brigade could easily spare one of its telephone detachments for this purpose.

Communication between the G.O.C. R.A. at Divisional Headquarters and the artillery units was maintained as follows:—

24th Brigade, R.F.A.—Artillery telephone laid to 2nd Infantry Brigade travelling office.

27th Brigade, R.F.A.—Office tapped-in on cable to 1st Infantry Brigade.

28th Brigade, R.F.A.—Artillery telephone laid direct to Divisional Headquarters.

49th Brigade, R.F.A.—Visual signalling.

26th Heavy Battery, R.G.A.—Mounted orderly.

Visual signalling was also established between Divisional Headquarters and the 2nd Infantry Brigade.

The use made of the telephones of the 3rd Infantry Brigade and the 24th and 28th Brigades R.F.A., is an example of a departure from the normal rule that each commander uses his cables for communicating with his own subordinates only.

Eventually No. 3 wagon laid a shorter line to the 2nd Infantry Brigade, on which No. 1 wagon, having reeled up its own cable as far as Milford, and the portion of No. 2 wagon's cable between that place and Divisional Headquarters, came into reserve.

Plates III. and IV. show the communications during an exercise carried out at Aldershot last year with a view to testing the efficiency of the communication companies. In order to make the test a thorough one the divisions were purposely scattered over a wide front, and no troops were held in reserve.

Plate III.

The plate shows the communications as established at the beginning of the exercise. The use made of the cable laid by No. 1 wagon is an example of economising wire by making one cable serve as many units as possible. In the first place an office was tapped-in at Mitchett Farm for the 3rd Infantry Brigade and the 24th and 49th Brigades, R.F.A. Of these the 3rd Infantry Brigade and the 24th Brigade, R.F.A., were con-

Plate III

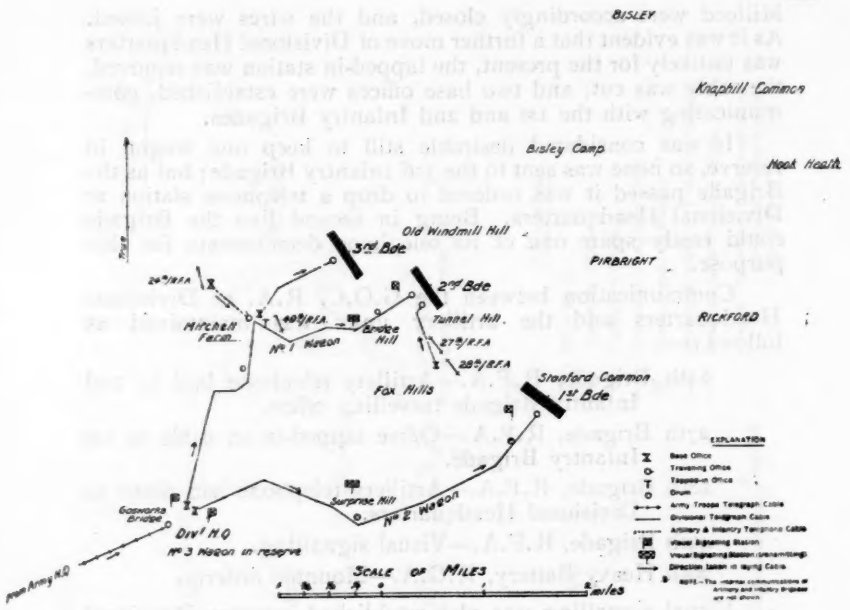
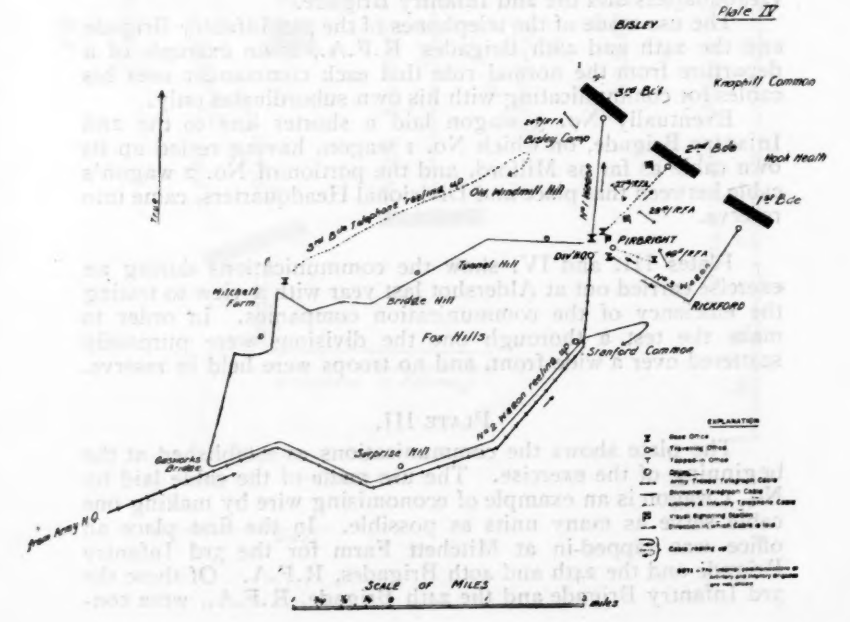


Plate IV



nected with the telegraph office by their own telephone cables; the 49th Brigade, R.F.A., being close to the office, no special measures were necessary. No. 1 wagon itself followed the Headquarters of the 2nd Infantry Brigade, and was connected by an artillery telephone with the 27th and 28th Brigades, R.F.A.

By means of transmitting stations on Surprise Hill and Bridge Hill, communication by visual signalling was established between Divisional Headquarters and the 1st and 2nd Infantry Brigades respectively.

PLATE IV.

In the second phase of the exercise the Division was ordered to pursue an enemy retiring north-east. The 1st Infantry Brigade was ordered to move by Rickford on Hook Heath; the 2nd Infantry Brigade by Pirbirght on Knaphill Common; the 3rd Infantry Brigade by Bisley Camp on Bisley. The artillery brigades were ordered forward in support. It was decided to move Divisional Headquarters to Pirbright.

To deal with the new situation the following preliminary arrangements were made:—

No. 3 wagon was sent to Pirbright to open communication between that place and the 1st Infantry Brigade. It left its light wagon at Gasworks Bridge to bring on the operators and instruments when the time should come to move headquarters.

The 1st Infantry Brigade was ordered to send an officer to Pirbright to conduct No. 3 wagon.

To enable the 3rd Infantry Brigade to reel up its telephone cable, orders were given that on reaching Pirbright, No. 1 wagon was to be diverted from the 2nd to the 3rd Infantry Brigade, and the latter brigade was ordered to send an officer to Pirbright to conduct the wagon by the shortest route to Brigade Headquarters. No. 3 wagon was ordered to hand over to No. 1 wagon four miles of cable, also one office set to enable a base office to be established at Pirbright.

The 2nd Infantry Brigade was ordered to maintain communication with Pirbright by means of its own telephone cable.

The signalling stations on Surprise Hill and Bridge Hill were withdrawn.

The actual move of Divisional Headquarters was carried out as follows:—

As soon as No. 2 wagon reported its arrival at Pirbright, orders were issued to all units that messages for Divisional Headquarters were to be sent to that place, and the 2nd Infantry Brigade was ordered to arrange for messages to be sent on by cyclist orderly down the Pirbright-Gasworks Bridge road to meet Divisional Headquarters.

The army troops cable wagon followed Divisional Headquarters, but as road crossings were numerous it was seen that it would be unable to keep up, so cyclists were attached to it

to forward messages on in the direction of Pirbright; cyclists also accompanied Divisional Headquarters. By this means the gap was bridged, and several important messages from the front were received by Divisional Headquarters on the road, were sent back by cyclist to meet the army troops wagon, and were thus transmitted to Army Headquarters.

Immediately before the move of Headquarters, the base offices at Gasworks Bridge were closed and the cables of Nos. 1 and 2 wagons were joined. The operators and instruments were taken on to Pirbright in the light wagon left by No. 3 cable wagon for the purpose.

As soon as No. 3 wagon had established communication with the 1st Infantry Brigade, No. 2 wagon was ordered to reel up. Having reeled up its own cable as far as Gasworks Bridge, it then reeled up No. 1 wagon's cable from thence to Pirbright. This could be done as No. 1 wagon, following the invariable practice, had dropped its empty drums as the cable was laid. On arrival at Pirbright No. 2 wagon came into reserve, when a redistribution of cable and instruments took place, so as to give each cable detachment once more its normal equipment.

Similarly, when No. 1 wagon had established communication between Pirbright and the 3rd Infantry Brigade, the telephone cable to Mitchett Farm was reeled up.

RASPLATA.

("THE RECKONING.")

By Commander VLADIMIR SEMENOFF, Imperial Russian Navy.

Translated, by permission of the Author, by L. A. B.

Continued from June JOURNAL, p. 788.

CHAPTER V.

THE PORT ARTHUR SQUADRON UNDER ADMIRAL MAKAROFF—THE FATAL 13TH APRIL—"WE HAVE LOST OUR HEAD!"

On 18th March the placing of the *Tsesarevitch's* cofferdam was begun. The unfortunate and damaged old cofferdam of the *Retvisan* was removed, and a new one built. Meanwhile, the battleship lay across the basin, her stern secured to a buoy, her bow resting on the bottom near the water's edge. The hole was being provisionally closed by divers, and the pumping vessels were continuously at work keeping under the water. It was said that great difficulty was experienced merely in preventing the water from rising. Slowly but steadily the ship sank deeper and deeper into the soft mud which forms the bottom in the west basin. In spite of this, however, no one doubted that the repairs of the *Retvisan* would ultimately succeed.

"Makaroff goes there nearly every day, and the captain neither eats nor sleeps, but works night and day." This was sufficient guarantee that all would go well.

I have already mentioned that we expected great things from a detachment of workmen from the Baltic Yard. These people's connection with the Government was purely a matter of business. They formed a self-contained section of their Company's *personnel*, and were not interfered with in any way by our bureaucrats.[1]

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[1] Our expectations are fulfilled.

The detachment of workmen from the Baltic Yard only consisted of a engineer, Mr. K——, a foreman, a draughtsman, one hundred and eighty nine workmen, and two clerks. During the siege, four of their number were killed, one died of scurvy, and eleven were wounded.

On 20th March our wireless stations "heard" the Japanese. That night the destroyers were sent out, but saw nothing of the enemy.

The night of 21st-22nd March was clear, but there was no moon. During this night the searchlights of the fortress repeatedly came upon suspicious objects out at sea. Between 12 and 1, and again towards 4 a.m., the batteries opened fire. The fire was not very brisk, and was not replied to from seaward.

At 5.45 a.m. the general signal was made: "Raise steam for full speed."

Towards seven o'clock, as soon as there was sufficient water, the squadron began to move out of the basins. The cruisers, owing to their light draught, went out first. The *Novik* and destroyers, of course, led. (The latter did not go by divisions, but as the circumstances best suited.) Then came the remaining ships, in such order as fitted in best with their berths. When we (*Diana*) steamed out at 8.25 a.m., the *Askold* and *Bayan* were already circling in the roads.

Far away to the southward, about 10 or 12 miles off, the masts and funnels of the Japanese ships appeared above the

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Compared with the masses of men which the Imperial Dockyard of Port Arthur had at its disposal, the number of these Baltic workmen was very small. The following is the work accomplished by them:—

Repairing the under-water damage caused by mines or torpedoes to the *Retvisan, Tsesarevitch, Pobieda,* and *Sebastopol* (in the case of the latter, twice over). All these repairs were carried out by means of cofferdams.

Repairing under-water damage from a mine to the *Bayan,* and the best half of similar damage caused by a torpedo to the *Pallada.* Both these ships were repaired in dry dock.

Repairing damage caused to the *Amur* by being rammed. For this purpose the ship was only heeled.

Changing a damaged screw-blade of the *Sebastopol* by means of a bell-shaped cofferdam.

General repairs to the *Peresviet, Sebastopol,* and *Retvisan* after the battle of 10th August.

Repairing hundreds of shot holes of every kind on board our ships during the bombardment from the land batteries.

Repairing the destroyers *Reshitelny, Rasyashtchy, Lieutenant Burakoff, Beshumny, Storoyevoy,* and several others.

The Imperial Dockyard only provided the necessary amount of unskilled labour. There was really no need for this, as the military authorities disposed of any number of men as good. What was of real importance was that the Dockyard authorities did not dare to interfere with the skilful work of the "Baltics." This enforced passive attitude was probably more useful than their active assistance would have been.

I should further like to mention that the Baltic detachment brought with them five railway car loads of material, implements, and instruments. Amongst these were pneumatic, electro-pneumatic, etc., etc., tools, such as we had not up to then possessed at Port Arthur, the chief naval base of our battle fleet.

Naturally, these workmen had been carefully selected.

horizon. We could make out that these were the Japanese battleships and armoured cruisers standing towards Port Arthur in two columns. To the south-east, but much nearer, were the "Greyhounds."

By 8.45 the enemy's armoured ships had approached up to 8 miles, when they altered course to the westward.

"They want to go to Liao-ti-shan and chuck about 'portmanteaus' again," was the joke on board the *Diana*. "They won't hit anything; we have taken care of that."

The weather was glorious: a clear sky, thermometer 37° F., no sea and no swell. A faint breeze was blowing from the south-west.

At nine o'clock the hostile squadron passed out of sight behind the Liao-ti-shan Hills. A single armoured cruiser remained off the mouth of the harbour. Evidently she was to watch how the shells pitched.

At 9.35 the Japanese battleships began to circle south of Liao-ti-shan, just as they did on the previous occasion, and to fire their 12-inch guns at Port Arthur when they reached a certain point. They were probably not a little surprised when they discovered that this time they were not to do this with impunity. We replied. The *Retvisan*, *Peresviet*, and *Pobieda* fired from the basin. Our ships even had a slight advantage, for the Japanese fired under way, whilst ours did so from a fixed place, the position of which was exactly known, just like a shore battery.

Meanwhile, the hostile armoured cruisers steamed past us demonstratively, as though to challenge us to fight. We did not respond. Towards ten o'clock the *Petropavlovsk*, flying the Commander-in-Chief's flag, steamed out into the roads. When the Japanese noticed that our squadron was leaving the basins which were exposed to their bombardment, they concentrated their fire on the entrance. Their practice there was very good. At 10.20 the *Poltava* came out at full speed. Twice a shell struck the water so close to her as to cover her with water and splinters. Luckily, the ship herself was not struck.

At 10.40 a.m. we heard cheering on Golden Hill. The signal station reported by Morse flags that one of the Japanese ships had apparently been hit.[1] This the Japanese did not seem to like. They ceased bombarding and steamed away from Liao-ti-shan. In doing so they carefully kept out of the range of our forts.

Towards eleven o'clock the hostile cruisers approached to 57 cables,[2] evidently with the intention of challenging us. They were five in number, as opposed to two battleships, one armoured cruiser, and two protected cruisers on our side, not counting

[1] We heard later on that it was the *Fuji*. A 12-inch shell had hit her fore-turret.

[2] 11,400 yards. In the Russian Navy the long ranges are always indicated in cables. One cable = 200 yards.

the *Novik* and the destroyers. The Admiral steered towards them in such a way as if trying to cut them off from their main body.

At 11.30 a.m. the 12-inch turrets of the *Petropavlovsk* opened fire.

The cruisers never replied to our fire, but steamed off to the southward towards their battleships, at high speed. The latter, however, made no haste whatever to come to their assistance. Evidently they wanted to avoid getting within the range of our forts.

Moreover, the *Sebastopol, Peresviet,* and *Pobieda* were just then coming out to support us. The two last named had the deepest draught, and were only able to leave the harbour at the top of high water.

We ceased firing, as the enemy was so determined not to come within reach of our fortress guns. At 11.20 a.m. the flagship made the signal: "Stop engines. Ships' companies to go to dinner." The cooks of messes ran to the galley with their dishes. "With old 'Beardy' there is no loafing. It used to be very different," they were heard to chatter cheerfully as the dinners were being served out.

The next high water was after dark. It was on account of this, and also because the Japanese had retired, that the Admiral made his squadron go up harbour again at once. Towards 12.30 the first two ships, the *Peresviet* and *Pobieda,* received orders to that effect. Whilst they were doing this the remaining ships advanced towards the Japanese. They were to cover the movements of these two ships, which the enemy, owing to the great distance, would anyhow not be able to make out clearly. The Japanese probably thought that we meant to face this unequal contest. They retreated southward, evidently with the intention of drawing us out to sea. We chased the enemy for half an hour and then turned back. The *Sebastopol, Petropavlovsk,* and *Poltava* went up harbour before the tide began to ebb. The cruisers followed them in. By 3 p.m. we were back at our old berth in the West Basin. The whole thing was a *tour de force.* During a single high tide nearly the whole squadron had gone out, manœuvred about, and gone in again. Only a short time ago we required *two* high tides, that is, nearly twenty-four hours, merely to go out.

The feeling amongst the crews was as if we had scored a victory. We certainly had not beaten the Japanese, but we had overcome our own slackness and want of enterprise.

During the night of 24th March we occasionally received Japanese wireless messages. It was intended to send the cruisers out scouting next morning. We were greatly pleased, and in hopes of perhaps coming upon one of the "Greyhounds," but at 4 a.m. there was a thick fog: we could not see a cable's length, and had to abandon all hopes of any adventures. Towards noon it cleared a little, but came on as thick as ever later on.

25th March brought real spring weather with a temperature of 55° F. in the shade. All hands in the dockyard and on board ship were as busy as bees; the *Tsesarevitch's* cofferdam was at last placed: it was now possible to move the battleship into the East Basin, closer to the dockyard. Thanks to the energetic labours of our experienced divers, it had been possible to close up temporarily the hole in the *Retvisan's* bottom: the ship was pumped out and floated once more.

On 25th March the Admiral took his squadron to sea during the early high water: this was soon after daybreak. Makaroff merely meant to practise manœuvres: unfortunately, he was forced into this by our insufficient training. The squadron stood to the southward and to the westward, and carried out various evolutions: their execution was very poor; sometimes it was indeed a sorry sight. "The 'Argonauts,'" growled the navigator.

Towards 9.30 several vessels hove in sight. They were standing on a north-westerly course, across our path, and were made out to be merchant steamers: a fourth was following a short distance astern. The *Askold* received orders by signal to stop and examine the steamers: they were British on the way to Niu-Chwang in ballast; they were allowed to go when nothing suspicious was found on board.

At 10.20 a.m. we made a better haul: the squadron was just passing North and South Hwang-tching-tau. These are the largest islands of the Maio-tao group which lie nearest to Port Arthur. The *Novik* was despatched to see if everything was all right in the Sound. Just as she could see round the Cape, she sighted a small steamer, not flying any flag, and towing a junk. When the steamer caught sight of us she tried to escape; but to get away from the *Novik* and her destroyers was not so easy. A few shots were first fired across her bows and under her stern; when this produced no effect a shot or two was fired into her, and she was finally forced to stop. A portion of the passengers (or crew) tried to get ashore in the junk; they were all captured. They consisted of twelve Japanese and nine Chinese; the steamer was Japanese, of rather less than 1,000 tons. She was called *Haien Maru*, and had been chartered by the special correspondent of the newspaper *Asahi*. Now she was employed, as was pretended, in transporting dealers in wood and fish to the different islands. This was obviously a pretext. The sparse woods of Kwantung had long since been seized for the defence of Port Arthur, and in the sea, mines were caught more often than fish. The steamer had been so damaged by our fire that she was unable to steam with her own engines; when the attempt to take her in tow failed, she was destroyed.

All these details we only heard after our return to Port Arthur; at the time we only saw the *Novik* and destroyers were going slow, and then, when they reached the Sound between the islands, that they suddenly dashed ahead for all they were

worth. Before we had time to make out what kind of vessel they were engaged with, their victim was already in flames; the latter had stopped, and our vessels surrounded her.

Every one was pleased with the *Novik*. "The *Novik* is a first-rate little ship; she sees and brings up everything; a regular retriever," was the general verdict.

Soon after this episode we wheeled about. Towards 2 p.m. we re-entered the port.

Whilst we were manœuvring about, the *Amur* was detached to lay mines. She steamed away in the direction of Talienwan; she probably went to Melanhö Bay.

During the night of 26th-27th March the Japanese repeated their efforts to block the entrance to Port Arthur. The attempt began at 2.20 a.m. It was the same sight as the first time; with this difference, however, that no one was in doubt as to the intentions of the steamers: fire was opened instantly all along the line.

The *Retvisan* was, indeed, not at her old billet, but in her place the *Bobr* and *Gilyak* lay in the entrance; and from the foot of Golden Hill the new battery, with the *Angara's* 4·7-inch guns, was firing.

Two of the "blocking-steamers" ran aground on the beach immediately below this battery. When they were still steaming ahead, the destroyer *Silny* delivered a plucky attack on them. Quite indifferent to the hail of our shell, she steamed up close to one steamer and fired her torpedoes at quite close quarters. The torpedoes hit, but were unfortunately placed. None of the steamers were so damaged as to sink at once. One, for instance, had her whole stem shattered, but the collision bulkhead held, and the steamer went on.

Two other steamers kept a little more to the left; one sank before she had come up to the lighthouse, the other grounded precisely at the spot where the *Retvisan* had struck.

It was said that there were more steamers besides these. One portion was supposed to have been sunk by our mines, another by our gunfire, and the remainder had lost heart and fled to seaward. Rumours of this kind must be received with very much caution.

It is astonishing how many hostile vessels are always destroyed in night attacks. Every one has this weakness. No one is boasting, but every one is so firmly convinced of the truth of what he reports, that he is ready to take his oath on it.

Next day, just as it was getting light, the entire Japanese squadron came in sight on the horizon. At 6.30 a.m. the "Greyhounds" came up quite close with the greatest boldness. However, it sufficed for one of our coast batteries to "show its teeth" to drive them away to the proper distance.

Our squadron was on the point of going out of harbour. The Japanese were thus able to satisfy themselves that their second attempt to bottle us up had failed like the first.

Towards 8 a.m. we were already in battle formation. With the *Petropavlovsk* leading, we cruised about in the bay between White Wolf Hill and Cross Hill. Our object was to tempt the enemy to come closer; but he was not to be caught. Until 9.30 a.m. his armoured ships, accompanied by the "Greyhounds," steamed up and down on the horizon. Then they disappeared in a south-easterly direction, without having attempted an attack on the squadron, or a bombardment. We anchored, to wait and see whether they would return. When nothing happened, we calmly returned to the basins about 2 p.m.

In order to stop any further blocking attempts on the part of the enemy, we laid out two floating booms in the roads. Such boom defences, or, at least, the material for them, ought to have been prepared in time of peace. Now it was impossible suddenly to procure all that was needful. We had to make use of what was available, and console ourselves with the faint hope of perhaps being able to strengthen the boom by and by, if circumstances permitted.

The Admiral tested these booms himself, but the results were not very brilliant. The boom was only able to stop small steamers of 1,000 to 1,500 tons, if built with a straight stem (that is, vertical to the surface of the water). Steamers with overhanging bows got over the boom, though with difficulty. When the *Angara* (11,000 tons, slanting stem) was tried, she passed over the boom, with her engines stopped, as if she had never noticed it. The vessel pressed the boom bodily under and kept her way right up to the mouth of the harbour. With two or three steamers of the *Angara's* size, the Japanese could bottle our squadron up in Port Arthur. We therefore had to think out some better means of defence.

The fact that the entrance into the harbour ran quite straight without any bends constituted a great danger. "Blocking-steamers" which, by chance or intentionally, headed the right way, could reach the entrance even with their engines disabled and the rudder shot away, as was proved by the *Angara's* trial. In consideration of the magnitude of this danger, Makaroff ordered two steamers of the East Chinese Railway Company, the *Chailar* and *Charbin*, to be sunk across the channel. They were placed to the westward of the centre of the fairway, near the banks of the Tiger's Tail Peninsula. A little further up the steamer *Shilka* was sunk, but to the eastward of the centre of the fairway. In this way, ships on entering were forced first to keep to the east side of the fairway, then to turn to port, back again to starboard, and then only to steer the usual course. This manœuvre, at night, blinded by searchlights and under fire from the guard-ships and batteries was, to say the least of it, very difficult. Moreover, the "blocking-steamers" aground on the beach below Golden Hill formed a new obstacle.

The protection of the entrance was further strengthened, as far as possible, by a suitable disposition of the cruisers and gun-boats as guard-ships. On the shoal off Lighthouse Hill a "fire-ship" had already stranded. She lay there almost exactly on the spot on which the *Retvisan* had grounded on 8th February. This steamer was used as a breakwater. The *Gilyak* placed herself behind the former and tied up to her. She thus formed, together with the coast batteries (armed by the *Angara*) to the right and left of her, the first line of defence. Further back, to the right and left of the entrance, our gun-boats, secured to buoys, formed the second line of defence. Finally, right inside came the *Askold* and *Bayan*, which swept the whole fairway with their guns. These two cruisers were the third line of defence.

A floating torpedo-net defence for the protection of the guard-ships was being made with the greatest haste. Such a net defence is a boom, from which torpedo-nets are suspended. They were placed right across the shallow entrance, and as the nets reached from the surface of the water to the bottom, they formed a very safe protection against any torpedoes fired from the roads inwards.

We found out that the Japanese intended, after the failures of their "fire-ships," to try and cover the sea with some burning liquid. Their plan was as follows:—When the flood tide was running its strongest, certain steamers were to be made to drift with it up to the entrance. These steamers were to be filled with petroleum, benzin, and any other liquid capable of burning on the water, and the Japanese meant to set them on fire after they had commenced drifting, and then to blow them up. We made some trials to that end, which proved that such an attack would constitute a very serious danger to our squadron. This danger was especially great with southerly winds, even very light ones. Our inventive geniuses were well to the front at once. They constructed several booms of non-flammable material, which would stop the burning stream (only the surface had to be barred). All schemes were at once tested and the best adopted. The Admiral was true to his maxim: "Every one makes mistakes. Far rather acknowledge your mistake ten times over, and start afresh, than be permanently inactive and only consider how the thing had best be done. *Le mieux c'est l'ennemi du bien.*"

Amongst others, the following measures were adopted:—The ships which lay in the fairway for the protection of the harbour entrance were placed with their sterns to seaward. They were secured with strong stern hawsers to buoys, securely moored. When the burning stream approached, they were to move their engines full speed ahead. This was bound to produce a powerful surface current outwards. Would it be strong enough to overcome the flood stream on the surface? That was the question. Nothing but the actual test would prove

it. Meanwhile, the Admiral would not leave even the most trifling "dodge" untried, if it promised any advantage.

The repairs of our battleships were now taken in hand. The engineers promised to complete the *Tsesarevitch* by the end of May, and the *Retvisan* in June. Some use was even found for the damaged and useless cofferdam of the *Retvisan*. It was repaired, altered in outline, and placed against the *Sebastopol*. By means of this, the damage that battleship had received on 12th March (collision) was made good.

Nearly every night the destroyers were sent to sea. This was done, less with the object of looking for the enemy, who had completely disappeared, than as an exercise. These boats had now to acquire the war training which they ought to have possessed long ago.

The main thing was that no one remained idle.

These were beautiful times. Our new Commander-in-Chief thought of everything. For instance, all ceremonies were abolished. If a senior officer passed the ship, all work went on calmly. This was even the case if he came on board.

"I haven't come here to hold parades. When God permits the war to come to an end, the old routine can be started again. Now, we have no time for such like." Thus Makaroff spoke, half joking, half in earnest.

The Uniform Regulations were also simplified as much as possible. The monkey-jacket was worn for everything. However, we were all ordered always to carry some arm, for all contingencies. The choice of weapon was left to each individual. According to circumstances, it might be sword, dirk (worn afloat by all commissioned officers), or even pistol. Still better was a good revolver, not worn in a case or belt, but simply in one's pocket.

On 3rd April a tragi-comedy was enacted. In broad daylight and in fine weather a merchant steamer, showing no colours, was sighted heading boldly for Port Arthur. We were all delighted, since it was quite clear that she was bringing in supplies of some kind. When the vessel reached the limits of range of our fortress guns she stopped, and evidently had a look round. Then, instead, as we expected, of making recognition signals to Golden Hill, she turned short round and steamed away—showing Japanese colours.

When the cruiser on guard duty steamed out and began to chase her, all that was left of her was a small puff of smoke on the horizon.

The squadron was in such good spirits that this piece of "colossal cheek," carried out with impunity, only evoked hearty laughter. It gave rise to a number of well-meant witticisms with reference to "Beardy." Much in this way the soldiers of Napoleon's Old Guard must have smiled half-respectfully, half-familiarly, when their Emperor could not get his foot into the stirrup.

"It seems that 'Little Grandfather' was quite mad with rage. He certainly had been made a fool of and no mistake. It is quite incredible. Every one sees the steamer, she goes everywhere, turns everything topsy-turvy, and then gets clean away before our eyes. There is no fool like an old fool, my 'Little Grandfather.'" Our people mocked away in this style, and chuckled at the thought that their ideal chief had for once in a way been taken in.

Orders were given that between daybreak and dusk the cruiser on guard duty in the inner harbour was to be prepared to go to sea at a moment's notice. All the same, it was the state of the tide which decided, even in case of cruisers, whether they could go out. If low water coincided with daybreak or dusk, the guard-ship was paralysed. The natural solution of this dilemma was to keep the cruiser in the roads and to relieve her as the state of the tide permitted. But this would have meant exposing one of our cruisers to torpedo attack every night, and we only possessed very few of them. The Admiral found a very happy solution. As I have already mentioned, the Japanese "fire-ships," which had grounded at the foot of Golden Hill, formed a kind of breakwater.

Between them and the *Shilka* the steamer *Eduard Barri* was sunk. She thus acted as a kind of breakwater, behind which a number of buoys were securely moored. The cruiser on guard secured head and stern between these buoys. There she was well protected against Whitehead torpedoes by the submerged hull, could not swing, and, irrespective of wind and tide, always had her broadside facing seawards, whilst her bows headed the right way for getting to sea. The cruiser was thus always in a position to meet an attack from seaward with the whole of her armament. On the other hand, she had only to cast off her bow and stern fasts, if required to chase. It was so simple and so obvious, yet no one had hit upon it before.

On 6th April, Golden Hill signal station reported the "Greyhounds" in sight. The *Bayan* was the guard-ship outside. All remaining cruisers were ordered to raise steam. There was, however, no occasion for them to go out. The "Greyhounds" only showed themselves and disappeared at once. The weather was now spoiling.

On 7th April it rained nearly twenty-four hours on end, and on the 8th there was a thick fog. We neither saw nor heard anything of the enemy.

On 9th April the *Diana* was on guard. We cruised about the whole day outside Port Arthur, and kept a sharp lookout, but saw and heard nothing.[1]

On 10th April the weather at last improved, and orders were given for the whole squadron to go to sea next day for tactical exercises.

[1] We were only on guard by day and had to keep underweigh. The work of placing the buoys, at which the guard-ship was to lie, was not yet completed.

The moving out began at 6.30 a.m. By about 8.30 all ships were out—that is, five battleships, four cruisers, and the destroyers. We proceeded in cruising formation towards Talienwan, and performed evolutions. There was a very light Easterly wind. The sky was cloudless, the horizon clear, and the range of vision in the clear air very great. The signalmen with the best and most experienced "seamen's eyes" sat in the crows' nests, close under the truck (also an institution of Makaroff's), and kept as sharp a lookout as they possibly could. The torpedo officers did not budge from the receivers of the wireless instruments. All was in vain; there was nothing to be intercepted in the air, nothing to be seen afloat. Our sailing had certainly become known, and it was in no one's interest to remain in the neighbourhood of Port Arthur.

We went as far as Talienwan, described a curve to the southward, and returned, getting back at 4 p.m.

On 12th April the *Diana* was again on guard. The day passed without any occurrence of note. That night we inaugurated the new billet behind the sunken steamers.

Towards 10 p.m. Admiral Makaroff and his staff came on board.

Apart from the short apparition of the "Greyhounds" on 6th April—and even that was not fully authenticated—two weeks had now passed, during which the enemy had given no sign of life. That was certainly suspicious, and therefore all destroyers ready for sea were sent out in a body during the night of 12th-13th April. The boats were this time to go a long way. They were given the task of searching the Elliot Islands. These islands are about 60 to 70 miles from Port Arthur, and it seemed very probable that the Japanese occasionally used them as a base. Theoretically, the dark period of one night sufficed completely for the purpose. The destroyers were promised, however, that at daybreak the *Askold* would in any case go out to meet them. The cruiser was to cover the boats if they had been delayed, and were obliged to return by day. The *Askold* had been chosen so as to obviate any possible mistake. She was the only vessel in the Far East with five funnels, and could therefore be recognised without any signals, even in the dark. The weather now turned wet. It varied between drizzle and light rain. The Admiral went through our battery. The men were at their action stations, and he said a few words to them, which means so much in war. Hardly had he completed his tour, when something was sighted. It was difficult to say what it was. Still, we saw in the searchlight beam from Cross Hill what was undoubtedly the outlines of vessels. They bore S. 60° E. Taking into account that our searchlights could not quite reach them, and estimating our distance from Cross Hill, as well as the angle at which its searchlights were trained, we made their distance to be about 2 miles.

The drizzling rain was brightly lit up by the searchlight beams, and rendered the field of view opaque. It seemed as if

these shadows sometimes lay motionless, sometimes moved backwards and forwards on the same spot. It was now 10.30 p.m.

"Shall I open fire?" the captain asked. "Oh, who can tell what it is," the Admiral replied rather crossly. "They are probably our own destroyers. They know nothing of night work. Some of them probably got separated from the rest and are now pottering about in front of Port Arthur. They can't find the others, and dare not return into harbour from fear of being taken for Japanese. Bad luck to it!" Makaroff mastered his ill-humour at once, and added in a calm voice: "Note the bearing and distance very carefully. If these turn out not to be our boats, we must certainly search the place very carefully to-morrow. Possibly something unpleasant for us has been dropped there."

The vessels now became visible, but only for a moment, and then disappeared in the rain.

At 10.50 p.m. we heard to the southward of us, approximately in the direction of White Wolf Hill, the sound of guns. It did not appear to come either from the shore, or from the sub-division of harbour defence destroyers, which were watching the southern boom placed there.

The remainder of the night passed peacefully. We saw nothing; in fact, we could really see nothing on account of the rain.

Just as it was getting light next morning, at 4.15, the Admiral and staff returned to the *Petropavlovsk*. Precisely at that moment several columns of smoke showed up on the eastern horizon. These were our destroyers returning from their expedition, which had been carried out successfully, but without result. They had not found anything in the bays of the Elliot Islands. Unhappily, the boats did not all return. The Admiral's fears had been only too fully justified. Some of the boats had lost touch with the main body, and had not regained it. Suddenly we saw the flashes of guns in the dawn to the south-east—a direction in which we had not looked for anything. (It was 5.25.) The firing could be heard distinctly. Who were fighting there, we were unable to make out, owing to the great distance. It was clear, however, that small vessels, probably destroyers, were fighting together. We (*Diana*) could have got away quickest, but the Admiral apparently did not want to employ the *Diana*, which could have been mistaken for the *Iwate*, as he had promised the boats a cruiser, unlike any Japanese ship. For some reason or other the *Askold* was not ready. Consequently, the *Bayan* (four funnels), which also did not resemble any Japanese ship, was ordered out. What with orders and counter-orders a good deal of time was lost. When the *Bayan* steamed out, we thought we had been quite forgotten. We therefore set off without orders and followed her. Of course we were soon left behind. When we reached the open, the *Bayan* was already a long way ahead. It turned out that the

destroyer *Strashny* had parted company during the night. On looking for her consorts she came across a Japanese destroyer flotilla, which she joined. The Japanese also did not notice that the *Strashny* was an enemy, so they cruised about together before Port Arthur till daybreak. As soon as it was light enough a mutual recognition took place, and at once a desperate fight commenced, of one against six, at quite close quarters.

The *Bayan* hurried as fast as she could to the assistance of her small comrade. All she could do was to scatter the hostile boats, which were steaming round the place where the *Strashny* had sunk. The Japanese destroyers fled to the southward. The remnants of the *Strashny's* heroic crew were swimming about in life-belts, or clinging to pieces of wreckage. They greeted their cruiser with joy; but already the "Greyhounds" were approaching from the south at top speed, in the place of the destroyers, which had fled.

Sceptics will, of course, say that they were only four protected cruisers opposed to our armoured cruiser. Still, it was four to one. The *Bayan*, or her captain—ship and captain are one—did not hesitate a moment. She covered those in the water with her high sides, lowered boats to pick them up, and faced the attack lying still with her engines stopped. At that moment we were still under Golden Hill and could not make out what was going on. Our hearts stood still at the thought that her engines might be disabled. Could we arrive in time to assist her? Great Heavens, how we cursed the St. Petersburg works where the *Diana* had been built! Instead of the 20 knots of the contract, we were hardly going 17. The oldest engineer had now to listen to some very bitter truths from the mouth of the youngest sub-lieutenant. The *Novik* came out and ran past us, as if we were at anchor. The *Novik* was followed by the *Askold*.

"Just look at that! It is easy to see that they were built abroad. That is something different from our 'Goddess.'"

The *Bayan* was already returning. The "Greyhounds" did not follow her. Apparently they had no desire to come within reach of our coast batteries. It was 7.15 a.m. The destroyers back from the Elliot Islands had already got in safely. At 7.15 the *Petropavlovsk* came out. The *Poltava* followed. The *Bayan* reported by semaphore and wireless what she had seen. She was not sure whether in the heat of the action she had saved everybody: possibly there might still be some men on the wreckage. The Admiral at once signalled: "Single line ahead on the *Bayan*. *Bayan* to lead the squadron back to the scene of the disaster. Every one to keep a good lookout for wreckage."

The line was formed. As we lay there, with engines stopped, to let the other ships pass and then form up astern, the *Petropavlovsk* passed quite close along our starboard side.

A suppressed "Ah!" passed through the ship's company. The Admiral came over to the port side of the bridge—that is,

the side nearest to the *Diana*. He wore an overcoat with a fur collar. The wind was blowing about his big, fair beard. "Your health, my lads!" came in his mighty voice. Every word was clear and distinct.

"We wish your Excellency good health!" sounded back in specially hearty, cheery voices.

"God grant a happy issue!"

"Respectful thanks your——"; but the regulation reply did not get beyond this. Instead, there burst out a frantic "Hurrah!"

The Admiral had already left the bridge and gone into the chart-house. He now came out again, went right out to the end of the bridge and took off his cap, waving it at us with a smile.

"Hurrah!" sounded again and again from the crew. The men clambered on to each other's shoulders to see "Little Grandfather." "Hurrah!" now shouted the officers, forgetting all restraint, and waved their caps amongst the men.

We saw our Admiral for the last time.

In my diary is written as follows: "8 a.m.—We are in single line ahead, in the following order: *Bayan, Petropavlovsk, Poltava, Askold, Diana, Novik.*"

The "Greyhounds" reappeared out of the morning mist. We steamed towards them. This time they were led by two armoured cruisers. The enemy advanced boldly towards us, though he saw that we were the stronger. A long range action commenced. At 8.10 the Japanese turned away suddenly and steamed off to the southward. The shortest distance had been 50 cables (10,000 yards). We had no losses. For a little while longer we cruised about over the spot where the *Strashny* had gone down, and looked about for any one to save, but without any result. We were then about 15 miles from Port Arthur. Any one with good eyes could see that the rest of our squadron was coming out. At 8.40 a.m. the Japanese battleships appeared out of the mist. They joined the armoured cruisers and "Greyhounds," and altogether headed straight for us. Now the Japanese were again the stronger, nearly twice as strong, in fact.

We followed our Admiral, who was turning towards Port Arthur and retiring. The Japanese followed us, with the evident intention of attacking. The *Novik* and the destroyers made good use of their speed. They steamed ahead and a little to port. The Diana became rear ship. I confess quite candidly that our position was causing me some anxiety. We were steaming as fast as we could, but the distance steadily decreased. By nine o'clock we were only 38 cables (7,500 yards) from the hostile leader (apparently *Mikasa*). Our stern 6-inch guns had already adjusted their sights. We were waiting for the flagship to order us to open fire; but no signal came. The Japanese also did not fire, just as if there had been an agreement to that effect. At 9.15 we reached the fire zone of our fortress

guns (6 to 7 miles). At 9.30 the enemy gave up the chase, without having fired a gun, and shaped course to the westward. The distance between us began to increase.

"Why did they not fire?" we asked ourselves. The *Diana* and *Askold* had been the rear ships at a distance of 38 cables, surely that was tempting enough to send some "portmanteaus" whizzing across.

Towards 9.30 we joined up with the remainder of the squadron. It was complete except for the damaged ships. The Japanese slowly moved behind Liao-ti-shan, as if they intended to commence their usual bombardment. Admiral Makaroff apparently intended to stand backwards and forwards as usual between White Wolf Hill and Cross Hill. The sinking of the *Strashny*, the hurried exit of single ships which this had caused, the sighting of the hostile fleet, and the forming up of the squadron—all this had somewhat blunted the impressions of last night, which, moreover, appeared quite unimportant. Neither the Admiral nor those about him gave any further thought to the suspicious shadows which we had seen so indistinctly when the searchlights were illuminating the rain so brightly. These shadows, however, had been seen precisely on the "figure of eight" we were making, namely, South of Cross Hill and East of White Wolf Hill. Every one had forgotten that we were to search out this place to see whether they had dropped "something unpleasant for us."

"The gunlayers to remain at their guns; the remainder fall out, but not to separate," I ordered.

The gunnery lieutenant came up to me. "Now for the old story," he said; "now they will chuck 'portmanteaus' from a distance. Let us go and have a smoke."

"By all means," I replied. "Nothing of any importance is likely to happen now. For to-day we have got everything behind us. We'll start washing decks. They haven't been touched since the hands were called."

We both came down from the upper bridge. The gunnery lieutenant went to the smoking place, where the slow match was kept burning. I went on the forecastle, where I stood at the starboard bow 6-inch gun, and was just giving the boatswain the usual orders, when an explosion, with a dull, rolling sound shook the whole ship, as if a 12-inch gun had gone off quite close. I looked round vaguely. A second explosion, even more violent! What was happening? Suddenly cries of horror arose: "The *Petropavlovsk*! The *Petropavlovsk*!" Dreading the worst, I rushed to the side. I saw a huge cloud of brown smoke. "That is pyroxiline, therefore a torpedo," passed through my mind. In this cloud I saw the ship's foremast. It was slanting, helpless, not as if it was falling, but as if it were suspended in the air. To the left of this cloud I saw the battleship's stern. It looked as always, as if the awful happenings in the forepart were none of its concern. A third explosion! White steam now began to mix with the brown

cloud. The boilers had burst! Suddenly the stern of the battleship rose straight in the air. This happened so rapidly that it did not look as if the bow had gone *down*, but as if the ship had broken in half amidships. For a moment I saw the screws whirling round in the air. Was there a further explosion? I don't know. It appeared to me as if the after-part of the *Petropavlovsk* (all that was visible of her) suddenly opened out and belched forth fire and flames, like a volcano. It seemed even as if flames came out of the sea, long after it had closed over the wreck.

Never, even at times when the most important orders were being given, had such silence reigned on board our ship, as at this gruesome spectacle. Habit, however, becomes one's second nature. As an old navigator I was in the habit of noting everything. When I saw the explosion, I mechanically looked at my watch, and then wrote in my note-book: "9.43.—Explosion on board *Petropavlovsk*"; and then: "9.44.—All over."

I believe such, almost unconscious, actions save one's nerves at moments that are so awful that one's brain reels. Now, as I am writing these lines and am living through it all again, I am firmly convinced of this. It was by my writing down these events, with their accurate time by watch, that I first managed to grasp them as real facts, and to think them out logically, as well as the other notes in my book. Without this mechanical action, panic might have seized upon me. Naturally, these workings of the mind were quite unconscious.

Outwardly all the officers of the *Diana*, like myself, remained calm. To judge by all one saw, it appeared to me that every one felt instinctively that an incautious word, a hasty movement, might conjure up a panic. We were passing through one of those critical moments, in which an insignificant external cause may incite the masses to the greatest heroism, as well as produce the most contemptible cowardice. The second-in-command, Rear-Admiral Prince Uktomsky, judged the situation quite rightly. Whilst the destroyers and torpedo craft were hurrying to the spot where the *Petropavlovsk* had sunk, and were saving what there was left to save, he hoisted the signal: "Follow me in single line ahead!" Then he placed his *Peresviet* at the head of the squadron, as if nothing had happened, and led it on as Makaroff had done.

The Commander-in-Chief had fallen, the command devolved on the next in seniority. *Le roi est mort, vive le roi!* That was well done! Every one grasped that instantly.

As is known, only seven officers (the Grand Duke Cyril amongst these) and seventy-three men were saved out of the whole crew of the battleship.

The squadron steamed in very good order in the wake of its leader, as usual up to White Wolf Hill. Here it reversed its course in succession towards Cross Hill. On board our ship there was a death-like silence. But this was no sign of

depression. Every soul was burning with rage against the successful enemy. All were determined to fight to the last man. The ship's company had gone to action stations of their own accord, and stood ready.

At 10.15 a.m. the *Peresviet* had already turned 16 points. Again a mine exploded, and the *Pobieda*, the second in the line, began to heel over slowly. The *Peresviet* stopped engines and turned short to port. The formation was lost: the whole squadron got mixed. Suddenly guns went off everywhere, here and there ships were struck by shell, projectiles whistled over our heads, and splinters struck the ship's side. Our ship now commenced an irregular fire. I was standing on the upper bridge with the gunnery lieutenant. At first we looked at one another, dazed, as if neither of us would believe his own senses and wanted to have his observations corroborated by the other.

"What *is* the matter?" he asked. "Panic," I said. There was no need to say more. We both dashed down from the bridge. On the lower bridge I saw the captain standing at the door of the conning tower.

"What are they firing for?"

"I don't know who has ordered it, sir."

"Stop it! They are off their heads!"

What was now going on around us was incredible. Mingled with the thunder of the guns came cries such as: "It's all up with us!"—"Submarines!"—"The ships are all sinking!"—"Fire, fire!"—"Save yourselves!"—The men had completely lost their heads. They hauled the hammocks out of the nettings and tore the life-belts out of each other's hands. Some were standing by to jump overboard. "Sound the cease fire!" roared the gunnery lieutenant. His voice was hardly audible in the general din. He seized the bugler, who had hidden in a corner, by the collar of his coat, and dragged him up to the bridge. At last the bugle sounded, but in a very shaky manner. "What's the matter with you?" I cried. "Have you got something sticking in your throat? Sound again! Again! Don't stop! They don't hear it!"

The notes now came better, but no one paid any attention to them.

There was a crash between the funnels. Afterwards we discovered that it was a Russian shell. Luckily, it only cut the launch's purchase and did no other damage. I ran along the batteries. "Officers, please not to allow any firing. Drive the men away from the guns." Spoken words had no effect on the gunlayers. They did not budge from their guns, and fired shell after shell, aimlessly, at an invisible enemy. We had to use force. It is wonderful how brute physical force can bring men to their senses, when they have lost their heads from the terror of imminent death.

Order was soon restored, and the firing ceased. The men recovered their senses, and with guilty faces commenced collect-

ing the scattered hammocks and life-belts. The guns' crews fell in at their guns. Some attempted to justify themselves, and addressed the officers timidly. They said: "It had all come so suddenly. Some one had called out, and then all the others joined in."

"What on earth did you fire at? Who ordered you to fire?" shouted the gunner furiously at a gunlayer, whom he had just torn away from his gun with all his strength.

"I——" stammered the man. "God knows—I don't."

"You nearly hit the *Askold*. If you had, then God help you!"

"Don't be angry, sir, I quite see it now."

I don't think I am boasting when I say that the *Diana* was one of the first ships where this aimless firing into the water and into the air, produced by the general panic, ceased. In the other ships it still lasted some minutes longer.

Some ships remained stationary, others steamed on in any direction, regardless of the formation. Others, again, turned with their helms hard over, and threatened to ram another ship any moment.

Why did the Japanese not make use of this moment to attack us? If they had concentrated their fire on the centre of this huddled-up mass of ships, every shot would have told, whilst hardly any reply would have come from us. Happily, they did not take in the situation, or possibly they could not make up their minds to act. Otherwise they would certainly have annihilated us completley. The *Peresviet* signalled: "Proceed into port, battleships leading."

It was now 10.25 a.m.

The first to enter was, of course, the *Pobieda*. She was able to work her engines, and was only heeling 5° to 6°. She had been lucky. The mine had gone off just under one of her largest coal-bunkers, which had been full, and the coal had absorbed the shock.

If only the *Petropavlovsk* had had such luck! Soon after noon we were back at our old berth in the West Basin.

What a day of misfortune! Before the war broke out we possessed seven battleships. Now only three were left: *Peresviet, Sebastopol,* and *Poltava*. However, this was not the loss which weighed on us. As the squadron was steaming up harbour, and in the absence of all official news, every one, from the oldest to the youngest, was anxiously looking out for signals. Every one still had the secret hope that Makaroff might after all have been saved, but dared not say so aloud. Every one was wishing with all his heart that one of the battleships would soon hoist the flag which we had not long ago greeted with such joy on board the *Novik*.—We were not to see it again!

It was a terrible day. Previous to this, and again later, during the war, I passed through bad moments, but never did I experience such a state of awful depression as after this event. My feelings were shared by all.

"Don't go about like a drowned rat," I said to the boatswain; "you must cheer up the men, keep up their good spirits. You don't seem to be doing anything towards this. For shame! War can't be made without losses. A battleship has gone down and the squadron has been weakened. We shall receive reinforcements. A fresh squadron is coming out. None of your hang-dog looks and idleness."

"Yes, yes, your honour," said the boatswain; "we can't do without losses." He spoke in a hesitating tone, and did not look me in the face. "It's not that at all, your honour. What is a battleship? They are welcome to sink another one, and even a couple of cruisers. That's not it; but we have lost our head. Oh, why had it to be just him and not any of the others?" His voice broke, and he turned away. Just as my boatswain, thought also the masses. This idea dominated officers as well as the common seaman, only on the lower deck, amongst those simple people, it was more openly discussed than in the officers' messes.

(To be continued.)

GERMAN TENDENCIES WITH REGARD TO THE PREPARATION AND DEVELOPMENT OF AN ACTION.

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IN the following treatise we propose to point out the German methods as regards the preparation and development of an action. We shall deal with the views expressed by the most authoritative German military writers, the principles laid down in the latest training regulations, and the data furnished by the Imperial Manœuvres, in which the commanders of the opposing sides are frequently officers destined for the command of armies in war.

The Germans reject any fixed formula or "normal type" of action, and insist upon the adaptation of the means available to the circumstances of each case. They are of opinion that strategy is the product of the character and intelligence of the Commander-in-Chief, and bears the stamp of his personality.

In the following lines, therefore, there will be found no attempt to describe typical battles, but only an indication of the *tendencies*. It is necessary to make this preliminary remark, because, with a view to clearness, we shall sometimes have to be more dogmatic than is, strictly speaking, admissible.

The tactical preparation of an action will be treated at some length, as it is precisely upon this point that opinions most differ in France and Germany.

CHAPTER I.

THE PREPARATION FOR BATTLE.

The General Advanced Guard.

In France, the general advanced guard has for its objects:—

1. To ensure the security of a march.
2. To obtain information within an area (which increases with the numbers of the force, the length of the front and the depth of the columns) on the proximity of the enemy, the roads he is using or

neglecting, his strength, and his intentions if possible, with a view to enabling the commander of the force to decide in what direction he will move, what dispositions he will adopt for the march, and for the concentration of his troops. The advanced guard thus makes it possible for the columns to remain separate for the purpose of movement and supply.

3. To give the commander of the force time for carrying out his plans in spite of the enemy; and to enable the troops in column of route to take up formations with a view to action.

As soon as contact has been once obtained by rifle and gun fire, the advanced guard continues its two-fold work of reconnaissance and protection. For the impending fight it procures:—

a. For the commander of the force: The *definite data* required to enable him to act with full knowledge of the situation, in ordering and carrying out (even in spite of the enemy) "a sound manœuvre, based upon, and applicable to the conditions" (Lieut.-Colonel Foch).

b. For the troops: A solid and strong barrier, under cover of which they will carry out the preliminary movements which may lead to victory.

In short, the object of the advanced guard is to obtain information, to provide against surprise, and secure freedom of action.

"The conception of an advanced guard (which applies to a detachment, an army, and indeed to a group of armies) dominates all questions connected with the art of leading in war. This is so true, that an officer, confronted with any given strategic or tactical situation, will avoid making any very gross mistake if he thinks, first of all, of the advanced guard and of the zone of protection which it affords" (General Bonnal).

The employment of strategic advanced guards composed of all three arms—a consequence of the permanent necessities of war—is also a result of the increased size of armies, and of their subdivision into great independent bodies of troops. The employment of such advanced forces made its first appearance under Napoleon, as Clausewitz explains:—

"Frederick the Great used to form his advanced guard of some thousands of cavalry (furnished, as a rule, by the cavalry on the flanks of the first line) who, as soon as the march was finished, rejoined their main body.

"Bonaparte, who possessed no less decision of character, and whose troops were quite as capable of manœuvring as those commanded 40 years before by Frederick II., almost always covered the movement of his army by a strong advanced guard.

There were two reasons why the action of Bonaparte was, in this respect, so different to that of Frederick.

"First, great changes in tactics had been introduced. An army was no longer led, on the field of battle, as a homogeneous, concentrated and indivisible mass manœuvring under the direct command of its chief and, so to say, almost within reach of his voice. A battle was no longer one single action, but consisted of a greater or less number of concomitant actions—either simultaneous or successive. The general plan of action had, therefore, to be subdivided into subordinate plans, and the chief command into subordinate commands all acting in accordance with the views of the Commander-in-Chief. Now, at the moment when the presence of the enemy is signalled, in order to arrange so complicated a plan and to make suitable dispositions, both *time* and *information* are required, and these can only be secured by a strong advanced guard capable of *investigation* and *resistance*.

"Secondly, modern armies are much larger and occupy a much wider expanse of country, which is another reason for covering them with strong advanced guards. Frederick the Great led from 30,000 to 40,000 men, whereas Bonaparte brought some 100,000 to 200,000 men into line."[1]

The Germans, reverting, it would seem, to the traditions of Frederick the Great, are inclined to form their advanced guards (in the case of an army) of cavalry divisions only.

"The strategic advanced guard," says General Schlichting (considered to be the leading exponent of Moltke's doctrine), "must not be rejected in all cases, but its employment can no longer be maintained as a rule. Without being formally tabooed, it will no longer be formed except under exceptional circumstances."

"The idea of launching strong mixed bodies of troops in advance of an army is far from being justified in all cases. On the contrary, the principle must be unreservedly accepted, of pushing forward strong masses of cavalry, reconnoitring far to the front, whose duty will be to furnish the necessary *data* to form the basis for decisions to be taken."[2]

Twice only in the last twelve years at the Imperial Manœuvres (in 1900 in Pomerania and in 1905 on the Rhine) have we seen the commander of one of the sides form an advanced guard of the three arms; even then it was formed more with the object of covering the main body than of obtaining data on which to base the plan of action.

The Napoleonic principle: "engage, and then one sees" does not apply, in Germany, to the General Commanding-in-Chief; it is doubtful even if the subordinate commander, who does the fighting, troubles his head much about it.

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[1] Théorie de la grande guerre, tome I., p. 275.

[2] Truppenführung und Heereskunde, 1905, p. 175.

This tendency, on the part of the Germans, is explained by their confidence in the numerical superiority and efficiency of their cavalry. It may also be due to the fact that their military education, bearing the stamp of their national character and also of the daring and hopes begotten of a prolonged succession of victories, enables them to come to a decision quicker, and upon less complete information. They consider that the secret of victory, and even of security in war, lies above all in a strong will, dominating that of the enemy, and carried into effect with overwhelming rapidity and the utmost energy. With them it is not the situation accurately known that should rule the offensive, but a rapid and forcible offensive which should *create* the situation, of which full advantage is to be taken.

"This determination to operate according to a *preconceived* plan, must be carried to such a point that the enemy, notwithstanding any projects he may have been able to form, shall be compelled to submit, without reserve, to the law laid down by our own initiative" (Von Bernhardi).

But a knowledge, at least approximate, of the distance of the enemy, of the area within which he is moving, and of his movements, is indispensable to the commander of an army, to ensure its timely concentration, and to furnish the elements necessary for a decision—even if it be "preconceived." On account of the slowness and torpor of the movements of an army, where situations can only be created or modified slowly, the Germans hope that their cavalry divisions, reinforced by artillery and supported by machine guns, and grouped if necessary into powerful masses, will furnish a series of reports extending over several days, which, completed by those of their secret service —excellently organised—and by the inherent conditions of the general situation, will afford, as a rule, adequate information. In case of need—and this will often occur—they will have resource to hypothesis.

"In order to solve a tactical problem," says Moltke, "we must first put ourselves in the position of the enemy, and ascribe to him the most judicious measures."[1] "Are not the enemy's rational measures the best foundation we can give to our own combinations?" (Von der Goltz).

Even in the days when the infantry weapon fired slowly, had a short range, and was liable to miss fire if it was raining, *i.e.*, when cavalry was much more powerful compared with infantry (the advanced detachments of which it was capable of handling very roughly), Napoleon, at any rate, considered it desirable, as a rule, to form his advanced reconnoitring force of all three arms. Moreover, notwithstanding his intellect, he avoided formulating theories. Views vary to a wonderful extent, and even a rational basis of argument is still singularly fragile; the war of 1870 alone is enough to prove that fact.

[1] Thèmes tactiques, solution du thème No. 51.

However that may be, to employ cavalry as the general advanced guard, is to entrust the security of the troops, and the commander's freedom of action, to the most unstable arm of the service.

Both of these points are, no doubt, secured as long as the distance to the enemy is greater than the front upon which the columns are marching; but they both become subject to very grave risks as that distance diminishes, for the defeat of a mass of squadrons is both sudden and rapid. Moreover, cavalry is the arm, above all others, which is especially affected by moral factors: ability of the commander, chance, the nature of the ground, etc. A numerical superiority is a less certain guarantee of success with cavalry than in the case of any other arm. Even if victory obtained a precarious security for the army in rear, the reconnaissance would be limited in extent, owing to the lack of resisting and penetrating power of cavalry, even if accompanied by quick-firing artillery, and supported by machine guns, cyclists, and small detachments of infantry.[1]

Armies which renounce advanced guards of all three arms, run the risk of a strategic surprise, and of making a useless or false manœuvre. Rapid and energetic action on the part of a general, both clear-sighted and happy in his combinations, can alone avoid or palliate the inconveniences of such an arrangement, which would be extremely dangerous in face of an active adversary.

The General Reserve and the Decisive Attack.

The trend of German opinion, with regard to the employment of reserves, and the decisive attack, is clearly shown in the following lines written by Major Kuhl, of the German GeneralStaff.[2]

"The study of Napoleon's campaigns still shows us the great general and eternal principles of command in war; but it is an exaggeration to assert that working tactical examples, capable of application at the present day, are to be found in those campaigns. This is certainly the case when attempts are made to copy, nowadays, the Napoleonic method of fighting an action, which consisted in holding the enemy everywhere, and in bringing up reserves in mass, acting upon the Commander-in-Chief's own order, to deliver the decisive blow at a point selected by him. Such methods have become impracticable

. . . .

"The question arises whether, in the great battle of the future, it will be possible to deliver the decisive stroke by means of a reserve. The latter could only intervene where the situation was ripe for such intervention. But will the Commander-in-Chief be able to detect, from the spot where he may be, the

[1] The Germans have no combatant cyclist units.

[2] Truppenführung und Heereskunde, 1904, p. 64, *et seq.*

point suitable for such action? If he is, will the reserve have time to move up to it, with the enormous extent of front taken up by modern armies? The history of recent campaigns affords no example upon which to base an assertion in the affirmative.

"Even if the moment were propitious, there would still be reason to ask if such intervention on the part of a general reserve would be useful. It is certainly not so when the fire preparation has been thorough, for in that case the troops in rear, in the same section of the battlefield, are sufficient to give to the firing line the moral support it requires, to dash forward to the final assault. If, on the contrary, the situation is not ripe, the reserves, because of their mass, would certainly suffer a catastrophe.

"The employment of a general reserve, at all events in the Napoleonic sense, such as is represented in certain quarters, even amongst Germans, as being strictly practicable, is—as a matter of fact—no longer admissible. We shall no longer see decisive strokes, like those at Wagram, Gross-Görschen, and Ligny, upon the battlefields of the future.

"Is it, then, necessary to have a general reserve?

"It is manifest that each of the great bodies of troops distributed along the front, as also their subdivisions, will need local reserves to feed the firing lines, and to keep up the maximum intensity of fire. This is the principal reason for the deep formation. But these local reserves are sufficient to give to the firing line the moral support necessary to carry it forward to the assault, and also the feeling of being supported. Contrary to the French opinion, according to which the commander should give the order for the decisive attack, it seems probable that the signal for the assault will be given by the firing line.

"What then should be the position of the general reserve?

"In the centre it would be best available for a central attack. But this form of attack has become more and more difficult and unsatisfactory, as the increased range of modern firearms has made it possible to bring a more powerful concentration of fire to bear upon an assailant, whose advance takes the shape of a salient. If, on the other hand, it is proposed to use this reserve on a flank, it will be difficult to do so, at the time and place selected, as it would have to make a flank movement in rear of the front. As a flank appears to be the most suitable place for employing the reserve, it will be put there, as a matter of choice. But in that case why not push it up beforehand, especially as it would then be in a position to envelop the enemy? One may say what one will against the mania for enveloping movements, but surely no one can deny that *envelopment is the most effective form of attack*, because it is the only certain means of deploying superior numbers of guns and rifles, with a view to developing a converging fire, and promises the best results by operating on the flanks and rear of the enemy?"

Von der Goltz also says: "Recent great battles have been won by an enveloping attack directed against one of the enemy's

flanks. It is the same idea as that upon which Frederick the Great's attacks, with an oblique line, were based; an idea which should guide us during the prelude of every action."

The result is, as Major Kuhl again says:—

"In modern war, the general reserve will be used to bring a converging fire to bear upon the enemy, by means of an enveloping movement, rather than held back, massed in army corps, behind the front, ready to act. But the most favourable case of all will be when, as at Sadowa, the envelopment of the enemy has been effected by the converging march of separate fractions of an army.

"In renouncing the decisive shock of massed reserves, the Commander-in-Chief in no sense abdicates his powers. His action—perhaps now more delicate than ever—will show itself at another time, *i.e., in the preparatory phase of a battle.*"

While the battle is going on the commander will retain at his own disposal only a small reserve, with the object not of directing the course of events, but of parrying any unforeseen occurrence or to fill a gap in the line. At the Imperial Manœuvres, the strength of this reserve often barely amounts to one-eighth of the available force.[1]

The reserve is often provided with groups of machine guns, a very mobile weapon at the immediate disposal of the officer commanding the force.[2] Also, since the introduction of quick-firing artillery, several batteries form part of the reserve; but this occurs only at the beginning of the engagement and generally only in the larger units (army corps, etc.).[3]

This constitutes in fact a return to the corps artillery under a different name. It also means the restoration to the officer commanding an army corps of the power of making his own action felt. The fog of war, which has increased of late by reason of the more general employment of concealed positions, has probably been responsible for this.

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[1] *Examples:*—

On the 10th September, 1896, Field-Marshal von Waldersee kept six battalions, out of 50, at his own disposal.

On the 13th September, 1899, out of six divisions, the King of Wurtemburg kept only one regiment, which he placed in rear of the centre.

At the Imperial Manœuvres in 1901, the Commander of the XVIIth Army Corps, who commanded on one side, kept four battalions and three batteries in reserve, *i.e.*, barely one-twelfth of his strength. Sometimes there was no reserve at all.

[2] Machine guns are at the immediate disposal of the officer commanding the force (Art. 198, Machine Gun Training Regulations). After the preliminary engagements, "machine guns should be as much as possible retired from under fire and be held ready for subsequent employment." They form in the hands of the officer commanding the force a reserve which can be rapidly employed to support threatened points, to act against the wings or flanks of the enemy, and to prepare the decisive attack.

[3] Infantry Training Regulations, Art. 294, and Artillery Training Regulations, Art. 365.

Major Kuhl, in the passage quoted above, in common with the vast majority of German writers, and in consonance with the constant practice at the Imperial Manœuvres, is inclined to advocate a converging or enveloping movement, carried out by the advance of a line of columns on a wide front. "No one denies," he says, "that this operation has certain drawbacks; for instance, the battle must develop on the lines already prepared, for the General Officer Commanding will not be able to introduce any great or essential modification in the distribution of his forces." In fact, only partial and local modifications can be carried out, in the form of voluntary assistance given by a subordinate commander (*e.g.*, the commander of an army corps or division) to a neighbouring force less favourably placed, with regard to ground or the general situation, than himself. Such cases of initiative, which must be unreservedly approved, occurred in 1870, and have been seen occasionally in great manœuvres.

In conclusion, Major Kuhl adds the remark—which is, in fact, an admission and the best criticism of the methods which he so ably deals with—"if the stroke is not successful at once, it has failed!"

The deep formation recognised in France, does not suffer from this drawback. Thanks to this formation, the future remains, to a large extent, still open; a clear-sighted and alert commander, with a capacity for prompt decision, will be able to remedy—at least, to some extent— mistakes due to incomplete or false information, to the unforeseen, to unfortunate accidents, to his own fault or that of his subordinates, all of which are things which form the current coin of war.

But however this may be, the Germans, with a line of columns marching on a wide front, will generally be in a position to oppose the French general advanced guard with rapidly increasing forces, and to attack its flanks. Modern armament makes a frontal attack more difficult and more lengthy, while at the same time it makes an enveloping attack more fruitful and rapid. It will, therefore, be well for the French advanced guards to cover a wide extent of country, and also to be strong in artillery, with a large supply of entrenching tools; arrangements must also be made—a difficult matter enough, in view of the depth of the army's formation—to ensure a prompt supply of ammunition. Moreover, the *moral* of commander and troops alike must be particularly high.

But the French advanced guards, by acting as a bait, will have the advantage of misleading an enemy relying upon brute force, and inducing him to deploy in a wrong direction. Meanwhile, the main strength of the French army will remain available for operations, the success of which may be reasonably expected, because the enemy will require a very considerable time, proportionate to his strength, in order to rearrange his columns and to correct such a mistake.

But one must not disguise the difficulty of a manœuvre like this, which has to be conceived and executed under pressure of an adversary, who has by his numerical superiority obtained the initiative and whose *moral* is increased by success.

The Strategic Advance.

In view of the general situation, and of the instructions he has received, the Commander-in-Chief of an army has at his disposal, even before the advanced cavalry forces meet, a mass of *data* sufficient to enable him to come to a decision and to select a primary objective.

It is, then, that, on the French side, the composition is decided of one or more advanced guards, pushed forward into the zones where reconnaissance or screening operations are especially necessary. The army, as a whole, remains in a deep formation, and gives no clue to the plans of the commander, nor to the operations which he will undertake, for nothing is yet definitely decided. If the general situation be very obscure, as, for instance, at the beginning of 1806, the army would be in a lozenge-shaped square, or *échelon* formation, capable of facing in any direction, and also of moving out a body of troops, as an advanced guard, to oppose the enemy wherever he might show himself.

The German army, preceded at a distance of several marches by the bulk of its cavalry, advances in a formation which would vary according to circumstances. All the army corps might move abreast, or in certain cases some of them might remain in second line. Should the roads available make this necessary, or if the obscurity of the general situation makes it desirable to provide for the possibility of an eventual change of direction, it would then be advantageous to take up a provisional formation approximately equal in breadth and depth (*e.g.*, the 3rd German Army, in the middle of August, 1870, marching from Nancy towards Chalons).

The extent of front which the army could take up without danger, depends upon the urgency of the question of concentration for action, *i.e.*, upon the distance from the enemy (von Blume). Security is, in fact, based upon information alone, for cavalry can hardly stop, or even seriously delay, a hostile force of all arms. According to the information received and the general situation, an engagement is either declined or accepted.[1] In the latter case the general disposition is modified according to circumstances, the front (upon which the advance is being

[1] The decision to refuse or accept an engagement is, therefore, generally made prior to the infantry being engaged, and not, as the French Regulations indicate, after the engagement of the advanced guard. For only the weak advanced guards of small detachments can be extricated with any ease; a strong advanced guard would usually only be able to break off the engagement under cover of the night.

made) being closed upon the centre or upon a flank, as may be most suitable.

As soon as the situation admits, the manœuvre to be carried out is decided upon. At the approach of the enemy (at least 24 hours beforehand, in the case of an army—von Blume), the original alignment is modified, and the army takes up an *échelon* or concentric formation, with a view to enveloping the enemy wherever he may be met, and also, *at first, the zone in which he is moving,* for "an envelopment is most simply executed when the troops detailed for it can, owing to the direction in which they are marching, be directed from a distance against the enemy's flank."[1]

"The Commander-in-Chief decides which of his two flanks will make a demonstration or remain on the defensive, and which one will take the offensive" (von Scherff).

"He will divide his forces into a practical attack and a secondary attack, allotting the largest possible number of troops to the principal attack" (Griepenkerl).

Troops must be used most sparingly along the front, especially according to German ideas. The principal attack being decided upon *a priori* according to the information received from the cavalry, is always subject to considerable uncertainty as to the strength of hostile troops which will be met with. The attack may, moreover, find itself opposed to a new front. The Germans, therefore, in default of the security which comes from a knowledge of the enemy's dispositions, which only the action of a strong advanced guard can furnish, provide themselves with that which comes from strength, and insure themselves against *the unknown* by *numbers.*

"In order to be certain of victory," says Clausewitz, "numerical superiority must be such that it alone compensates for all other factors capable of telling in the enemy's favour, such as the ability of his commanders, the *moral* and training of his troops, luck, &c."[2]

The corps detailed for the main and secondary attacks are at the outset separated from one another. "As the enveloping troops must advance at an angle to the main front, an interval must be left. It should be such that the two inner flanks do not close in on each other during the attack" (Infantry Training Regulations, Art. 394).

The interval in the case of two armies operating together will be as much as a day's march; which is what Moltke ordered the night before the battle of Sadowa. The further off the enemy is, and the larger the forces composing the frontal and

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[1] Infantry Training Regulations, Art. 393.

[2] This is the whole teaching of the battle of St. Privat. Moltke, when he had by no means grasped the entire situation, wrote at 10 a.m. on 18th August to Steinmetz, who had 50,000 men, to attack the front, and to Prince Frederick Charles with 200,000 men to attack the flank. Yet the final envelopment was brought about by a single brigade.

enveloping attacks, the greater will be the interval between the last-named forces. Consequently, between their places of concentration and their subsequent lines of advance, intervals must occur of which an adversary with manœuvring power can take advantage to break through the front. But for this manœuvre the adversary's force must be united, and should have somewhat of the advantage in the time taken to mobilise. The operation is by no means impracticable, if only the offensive is favoured by the nature of the country, and is not checked by permanent fortifications.[3]

The corps which are to deliver the frontal attack move by divisions or brigades, making the utmost possible use of the roads available; those which are to execute the enveloping attack keep a deep formation, in view of the great efforts which will be demanded of them.

In order to enable the artillery to eventually make the best use of the ground and to employ concentric fire, the regulations have directed, since the adoption of quick-firing guns, that all columns marching separately should be accompanied by batteries of artillery, even if their usual organisation does not include this arm.[4]

Each of the individual columns is preceded by a tactical advanced guard of no great strength. "Owing to the changes in the method by which strategical exploration is carried out (*i.e.*, it is now entrusted entirely to the cavalry) the *rôle* of advanced guards has diminished in importance. They are merely the first *échelon* of the troops to be deployed." (General von Schlichting.)

They are generally composed of infantry and cavalry only; this applies even to the advanced guard of a mixed brigade (6 battalions and 6 batteries). "The officer commanding a division (12 or 13 battalions and 4 brigades of artillery) would do well to keep his batteries at the head of the main body and not tell off any to the advanced guard because of the numerical weakness of the latter" (General von Schlichting). In this

[3] This breaking up into columns is constantly practised at manœuvres. It is called "Entfaltung" (deployment) Infantry Training Regulations, Art. 315. It may, or not, be preceded by a formation on a larger front, Aufmarsch (assembly).

[4] In the advance into position, the batteries should keep to the road as long as practicable. If possible the advance should be made simultaneously in several columns (Artillery Training Regulations, Art. 413).

When the troops advance to the attack by several roads the officer commanding decides by which road or roads the artillery is to march. If the whole of the artillery be kept together in one column, transmission of orders and the employment of the artillery with a common tactical objective are facilitated. If the artillery be distributed among the different columns, it will often allow a better utilisation of the ground and will facilitate the distribution of the artillery by groups (Artillery Training Regulations, Art. 391).

way the whole of the artillery can be simultaneously employed and its unity of action insured.

The centre of gravity of the artillery mass should, however, be pushed as far forward "as its safety admits and its probable early employment in action demands" (Field Service Regulations, Art. 340). As to the heavy artillery with which each German army corps is now provided, "it marches usually behind the infantry of the main body, but, if the attack of an entrenched position is expected, it should be placed nearer the front to ensure its employment as soon as the opportunity occurs." That is to say, it marches in rear of the leading division when an army corps is marching in column, or in the rear of the field artillery when marching with a division alone.[1]

In this way the army advances in line of columns the depth of which increases towards the decisive flank. Before long the cavalry divisions clear away from the front, when proximity to the enemy is reached, and mass themselves on that flank which is to be enveloped. They push forward in front of the troops executing the enveloping movement, to reconnoitre for them, to protect them, and to conceal their advance. Finally, in the combat, they prolong their outer flank.

In short, even before the first shots are interchanged, the Commander-in-Chief will have distributed his forces and assigned the parts they are to play. He launches his army and "prepares" the battle.

The significance of the dispositions made, however, will not be missed by a wise adversary; the German method will, therefore, scarcely enjoy the advantage of surprise.

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[1] Article 343, Field Service Regulations, as amended by orders of 8th October, 1903. The heavy artillery marches ordinarily behind the combatant troops and occasionally in rear of the first line of the train.

(To be continued.)

NAVAL NOTES

Home. The following are the principal appointments which have been made :—

Rear-Admiral—F. S. Pelham to be Admiral-Superintendent, Gibraltar Dockyard.

Captains—C. G. F. Cradock, C.B., M.V.O., to "Victory," as Commodore, 2nd Class, in Command of R.N. Barracks, Portsmouth; A. P. Stoddart to "New Zealand."

The new first-class battleship *Superb* commissioned at Portsmouth on the 9th ult., and joined the First Battle Squadron of the Home Fleet, under the command of Admiral Sir W. H. May, K.C.B., K.C.V.O.

Admiralty Inspection of the Fleet and Visit of the Delegates to the Imperial Press Conference.—On Saturday, 12th ult., an opportunity was afforded the Delegates of the Imperial Press Conference to be present at the inspection by the Lords of the Admiralty of the fleet at Spithead. The ships were anchored as shown in the accompanying plan :—

Line A.—The First Battle Squadron of the Home Fleet, composed of the first-class battleships *Dreadnought* (flagship of Admiral Sir W. H. May, Commander-in-Chief of Home Fleet), *Bellerophon*, *Superb*, *Temeraire*, *Lord Nelson* (flagship of Rear-Admiral C. J. Briggs), *Agamemnon*, *Irresistible*, *Bulwark*.

First Cruiser Squadron, composed of the first-class armoured cruisers *Drake* (flagship of Rear-Admiral the Hon. S. C. J. Colville, commanding), *Indomitable*, *Inflexible*, *Invincible*, *Minotaur*.

Protected cruisers *Isis*, *Dido;* and repair ship *Cyclops*.

Line B.—The Second Battle Squadron of the Home Fleet, composed of the first-class battleships *King Edward VII.* (flagship of Vice-Admiral Sir A. B. Milne, Bart, Commanding Squadron), *Britannia*, *Hindustan*, *Dominion*, *Hibernia* (flagship of Rear-Admiral J. Startin), *New Zealand*, *Commonwealth*, *Africa*.

Second Cruiser Squadron, composed of the first-class armoured cruisers *Shannon* (flagship of Rear-Admiral R. S. Lowry, Commanding), *Warrior*, *Defence*, *Cochrane*, *Natal*.

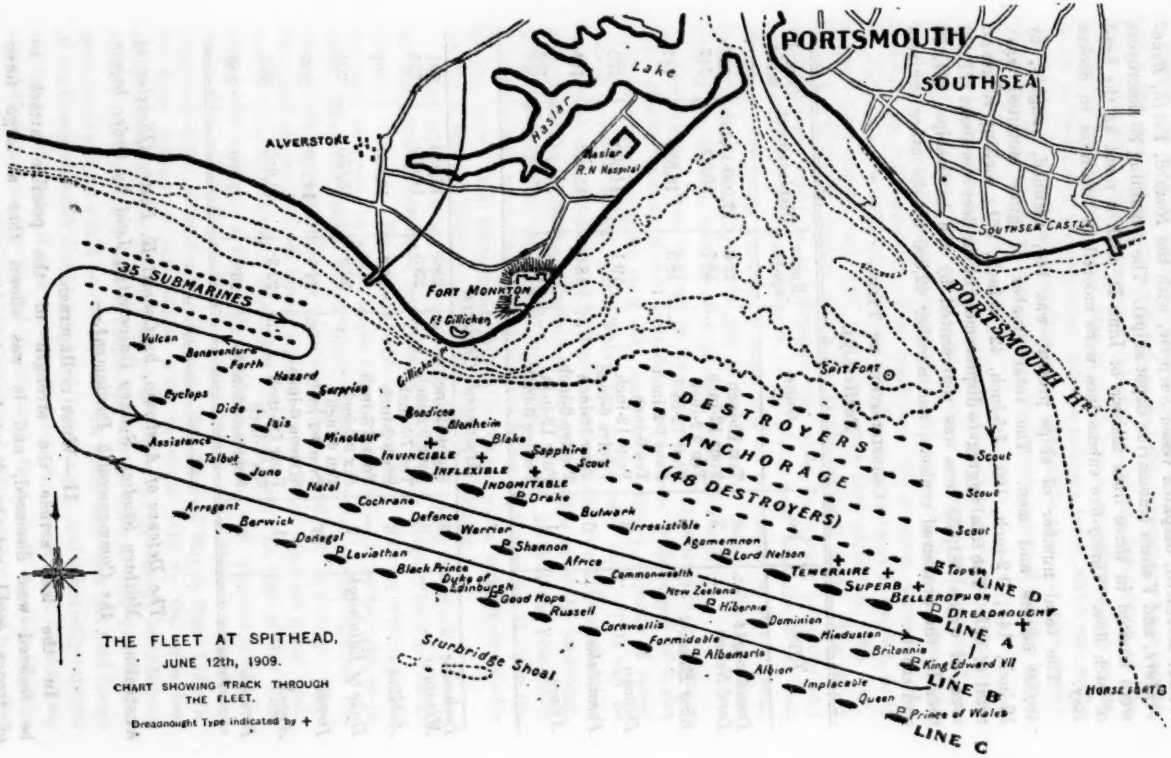
Protected cruisers *Juno*, *Talbot;* and repair ship *Assistance*.

Line C.—The Atlantic Fleet, composed of the first-class battleships *Prince of Wales* (flagship of Vice-Admiral H.S.H. Prince Louis of Battenberg, Commander-in-Chief), *Queen*, *Implacable*, *Albion*, *Albemarle* (flagship of Rear-Admiral W. B. Fisher), *Formidable*, *Cornwallis*, *Russell*.

Armoured cruisers *Good Hope* (flagship of Rear-Admiral F. T. Hamilton, Commanding Fifth Cruiser Squadron), *Duke of Edinburgh*, *Black Prince*, *Leviathan* (flagship of Rear-Admiral A. M. Farquhar, Commanding Fourth Cruiser Squadron), *Donegal*, *Berwick*.

Protected cruiser *Arrogant*.

Line D.—Third-class cruiser *Topaze* (broad pennant of Commodore E. F. Charlton, Commanding First Destroyer Flotilla), 12 destroyers, *Adventure* (scout); third-class cruiser *Sapphire* (senior officer's ship, Second De-



THE FLEET AT SPITHEAD,
JUNE 12th, 1909.

CHART SHOWING TRACK THROUGH THE FLEET.

Dreadnought Type indicated by +

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stroyer Flotilla), *Blake* (depôt ship), *Blenheim* (depôt ship), third-class cruiser *Boadicea*, despatch vessel *Surprise*, with the *Hazard*, *Forth*, *Bonaventure*, and *Vulcan* (submarine depôt ships). The remaining 36 destroyers were moored in three lines inshore of Line D, with a scout at the head of each line. Thirty-five submarines were moored in two lines in Stokes Bay.

The total number of ships present was 144, manned, roughly, by 40,000 officers and men. The total number of guns mounted was: 12-inch, 144; 9·2-inch, 100; 7·5-inch, 42; 6-inch, 351; making a grand total of 637. The total aggregate displacement of the fleet was about 771,200 tons, of which 381,450 tons was represented by the battleships, 224,650 tons by the armoured cruisers, and another 42,500 by the other cruisers and scouts.

CLASSIFICATION BY TYPES.

Battleships.

Type.	No.	Guns.	Knots. speed.	Displacement.	Complement.
Dreadnought ...	4	Ten 12-inch ...	21·8	17,900-18,600	726
Lord Nelson ...	2	Four 12-inch Ten 9·2-inch ...	18·7	16,500	747
King Edward ...	8	Four 12-inch Four 9·2-inch Ten 6-inch ...	18·5	16,350	781
Duncan	3	Four 12-inch Twelve 6-inch ..	19·1	14,000	750
Formidable ...	6	Four 12-inch Twelve 6-inch ...	18·0	15,000	781
Albion	1	Four 12-inch Twelve 6-inch ...	18·2	12,950	700

Armoured Cruisers.

Invincible	3	Eight 12-inch ...	25·0	17,250	731
Minotaur	3	Four 9·2-inch Ten 7·5-inch ...	23·5	14,600	755
Achilles	3	Six 9·2-inch Four 7·5-inch ...	23·3	13,660	704
Duke of Edinburgh	2	Six 9·2-inch... ...	22·8	13,660	704
Drake	3	Two 9·2-inch Sixteen 6-inch ...	24·1	14,100	900
Argyll	1	Four 7·5-inch Six 6-inch ...	22·3	10,850	655
Berwick	2	Fourteen 6-inch ...	23·0	9,800	600

Australia. *The Defence of Australia, by Colonel H. Foster (Director of Military Studies, Sydney University), Laid by Order before the Commonwealth Parliament.—*

II.—WHAT IS REQUIRED.

In the last article the strength of the possible attack to be resisted was discussed, and it was shown that a large force of troops could not be directed against Australia. The business of the local troops is to make the success of a small force, which might land,

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impossible. In fact, the land forces must be numerous and efficient enough to compel the invader to come with a large force if he is to succeed. If this be the case, naval action will ensure that this invasionary force cannot reach Australia. Her defence rests, therefore, on the interaction of two forces—the naval force, which, though small hostile expeditions may evade it, can certainly stop all large ones; and the military force, which can make the success of the small expeditions so impossible that no wise enemy will launch them at all. Let us consider the defence required for this latter purpose.

The first fact to be noted is that the population and wealth of Australia is mainly confined to the south-eastern corner of the island continent, or roughly to a strip a few hundred miles back from the line of coast from Adelaide to Rockhampton. This coast-line, which gives access to the populated part, is thus the part of Australia where defence is needed, as it is here that attack will find the most attractive objective. We may, perhaps, add Perth, Hobart, and a few of the northern ports. The object of the enemy would be to dominate the cities, to occupy populous and fruitful country, like the Illawarra, or the plains near Adelaide, or, in case of only a raid being possible, to seize coal at Newcastle or Wollongong, destroy merchant shipping in the chief ports, or ocean cables at their landing places, thus cutting off Australia from the world.

The defence force, having, as we said, to be large enough to make a small attack hopeless, should provide mobile forces, with plenty of Light Horse and machine guns, and with some field artillery, capable of being rapidly directed to any point where the enemy may land. This can be done within the limits named in South Australia and South Queensland by using the railway system. Beyond it the north and west of the continent, as well as Tasmania, are only to be reached by sea, so that the possibility of transporting troops depends on the sea being kept open for the passage by the navy. Any threatened points in these parts must unavoidably depend at first on their own local forces to resist attack.

The main points which might most tempt an enemy to attack, namely, the capitals and Newcastle, must also have definitely assigned local garrisons for their defence. The attack will be so sudden that no warning will generally be given, by which forces from a distance could be brought up in time. The local forces, which could make the place secure against the raid which is most likely to form the attack, need not be strong. Some thousand or two foot, or horse, riflemen, with a few machine guns, could prevent any landing on a coast they were guarding. In time of war some permanent look-out, a signal or telephone system, and trenches ready for occupation, should be provided. Larger attacks, which these local garrisons could not resist, or landings at harbours like Twofold Bay or Port Lincoln, far from centres of population, must be dealt with by the organised mobile forces sent for the purpose, so as to prevent the enemy establishing himself and forming a base of operations. If he were to land and try and operate inland, he would be cut off from his home base, and the field forces of the Commonwealth should soon block his advance, and eventually capture his force. The fear of this result will deter the enemy from despatching expeditions necessarily limited in strength to a small number of ships which might manage to elude the navy, and will probably limit his action to making raids of three or four cruisers which might land a few hundred

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men. At any point where such a raid could profitably be made there should be some defence, which should comprise batteries to keep ships out of the port, and a small infantry garrison to repel any attack on the batteries by a landing force.

As a raiding force can make a feint of attacking, and then move away, and reappear suddenly at some distant point, it is obvious that the important points, capitals and ports, should each have its own garrison to rely on. No transfer of mobile troops from one part of the country to another should be made till the enemy has clearly shown his intention of effecting a more serious attack than a temporary raid. The railway schemes for all probable movements of troops should be systematised beforehand, and arrangements made for using civil resources for telegraphic communication of news, and for obtaining labour, medical assistance, supplies, and transport for the force in the field.

The strength of the forces thus shown to be needed for defence of Australia will be that sufficient to provide garrisons for all her capitals and chief ports, as well as mobile forces readily available to act at any other threatened point, remembering that as the attack has the advantage of surprise and rapid movement one central force cannot be thrown in time from point to point, but there must be several in various parts, each capable of dealing with any possible attack.

Without going into details beyond the scope of this article, a few words may be said on the material defences of the ports. The best and cheapest is no doubt a few 6-inch guns, manned by trained and resolute men, and assisted in firing at night by searchlights. There is little necessity for submarine mines to deny the port to hostile ships, which will probably be deterred, or certainly prevented, from entering the harbour by the guns. In England mines have been given up, as being unnecessary, expensive, and a possible danger to merchant ships. A striking comment on this comes from the United States, where a well-known naval officer writes:—"When we Americans remember what an intolerable nuisance were the torpedoes planted in our various harbours in 1898 (during the Spanish war), we can hardly be surprised that Great Britain has decided to withdraw mines from her mercantile ports."

As regards defences afloat, much has been said advocating torpedo-boats and submarines. But both require specially highly-trained crews, and are ill-adapted for work in rough seas, which are not only dangerous, but obscure the vision and diminish greatly the speed of small craft.

The effect of torpedoes is much overrated by the public. One commander-in-chief during the Manchurian war, Admiral Bridge, well known here, has stated that the one certain deduction from the naval war was the ineffectiveness of torpedoes. Other reports bear this out. At the battle of Tsu-shima, over 150 torpedoes were fired, with only seven or eight hits; and these against helpless ships, although the Japanese had devoted much time, money, pluck, and perseverance to perfecting torpedo-boat work. Submarine boats are at present quite experimental. They are slow, deficient in power of vision, sea-worthiness, and range of action; they form an extravagant substitute for guns in defending a harbour; while at the present time not yet adapted for action on the high seas at any distance from their port.

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So much for the local and passive defence of Australia, which looms far too large before the public eye. Its advocates seem to expect, or almost to desire, occasion of invasion, so as to have the opportunity of making use of the passive defence, whose preparation they call for. But the fact is that the people of Australia can defend their country most effectually, not by measures of local defence, which contemplate her undergoing some of the ills of invasion, but by averting that danger before it comes on them. An enemy vigorously attacked at home will not be very capable of turning his attention to sending expeditions away. He will more likely devote his strength to defending himself.

Command of the sea confers on Great Britain the power to move forces to any part of the world, in order to attack and embarrass her foes. This has been exhibited in her past history, and will form her most ready means of defending her daughter dominions in the future. It was never shown on such a scale as in the South African war, where 250,000 men were moved 6,000 miles over sea at an average of 1,000 a day, a rate not exceeded by the Russians over their Siberian railway.

In such expeditions Australia will certainly find it to the advantage of her security from attack to join. To begin with, their seizure of any possible footholds for the enemy within reach will deprive him of the advantage of harbours which might be converted into extemporised bases for his attack on Australia. Many foreign Powers have such harbours near Australia, all open to her attack, and, in case of war with any of those Powers, forming objectives for the employment of her forces towards her defence. The enemy's coaling stations scattered about the ocean would especially form a desirable object of attack, as their capture would help to guard Australian trade afloat by depriving the enemy of places where his cruisers could coal or refit.

Beyond these, however, there are greater objects for possible British operations, in which Australia, as she grows in wealth and her commerce increases, will have more and more interest. Thus, if England were obliged to fight to keep open the Suez Canal now, and that of Panama in the future, Australia would be virtually concerned in assisting that effort. Again, British interests in China cannot fail to be most important to Australia, who could hardly sit idle while they were being maintained by the forces of Great Britain. Similarly any danger of the absorption of the Malay Islands by a great Power would even more immediately concern Australia. The security of India against internal rebellion or foreign aggression would also be of direct interest to Australia. Even this year a Victorian regiment has volunteered its assistance to the mother country in India. Still more we can be sure that if peril should threaten her sister dominions in South Africa, New Zealand, or Canada, Australia would desire to come to their assistance, as readily and effectively as in 1899.

This glance shows a number of possible theatres of war in which Australia would wish to bear her share, and in all of them her forces would be a valuable reinforcement to the army of the Empire, whether in attacking an enemy's naval ports, seizing bases of operations for British naval and military expeditions, or in adding her troops to the British forces in the field.

In considering these possibilites, we cannot fail to see how little purely local defence is required to guard Australia from aggression. The defence

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of each part of the Empire, like Australia, is best effected by mobile forces ready to strike whenever they can most affect the enemy. Local forces, above the minimum necessary strength, are, if kept at home, merely isolated bodies of troops, deliberately foregoing all the advantage of mutual assistance in the great effort which would provide a common and adequate defence for the whole of the dominions of the Empire.

Nor does this demand any great expenditure or change in the constitution of the local forces, from which the volunteering troops for service abroad will be drawn. Identical organisation, arms, and equipment are desirable; similar administration and military law; a uniform system of carrying out command and staff duties, and of drill and training for officers and men; in fact, what in machinery is called "standardisation" of parts, would be most helpful in promoting the efficiency of an army composed of contingents from all parts of the Empire. Each might well have the factories to produce arms and ammunition, as well as equipment, and military stores of all sorts. Each part of the Empire, like Australia, would then be a base of supplies, of stores, and of reinforcements for the Imperial forces engaged in her neighbourhood.

An army of volunteers so formed and trained will have fewer points of contrast and friction, and will possess a cohesion in the fact that all are preserving the safety of their own homes by attacking the possible enemy, and that each man is in arms because he knows that the defence of his own country is at stake. Such a force will be a true popular army, and on the virtue of such an army may well be quoted some stirring words, spoken on the 26th of May, 1797, by one of the noblest and most brilliant of British statesmen, Charles James Fox:—

"They compel us to admiration by their vigour, their constancy, their spirit, and their exertions in every great emergency in which they are called on to act . . . . it arouses everything that belongs to the soul as well as to the body of man; it makes every individual feel that he is fighting for himself, and not for another, that it is his own cause, his own safety, his own concern, his own dignity on the face of the earth. . . . . Who does not find in this principle the key to all the wonders which were achieved at Thermopylæ, and elsewhere, of which the recent and marvellous acts of the French are frequent examples? He sees that the principle of liberty only could create the sublime, irresistible emotion. Shall we, then, refuse to take the benefit of this invigorating principle, by the mere force and spirit of which France has brought all Europe to her feet?"

France. The following are the principal appointments which have been made:—

Capitaine de Vaisseau—E. M. Barthes to "Couronne" and Command of Gunnery School. Capitaines de Frégate—E. A. Raffier-Dufour to Command of Madagascar Naval Division; L. L. Préaubert to "Vaucluse"; C. L. Ducoroy to "Descartes"; F. J. Mouillé to Command of 1st Channel Submarine Flotilla; V. G. Voitoux to "Arbalète" and Command of 2nd Mediterranean Destroyer Flotilla. — *Journal Officiel de la République Française.*

Launch of the "Danton."—On the afternoon of the 4th inst. the new first-class battleship *Danton* was successfully launched at Brest. The ship

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was to have been launched on the 23rd of May, but the attempt was, however, on that occasion unsuccessful, for after moving a distance of 144 feet she stopped on the slip and refused to move further, and although tugs were immediately attached to her, and every effort made to move her again, all was unavailing. Steps were immediately taken to shore her up and make her secure, and it is believed to have been very fortunate that she stopped where she did, as had she glided further she would have been partly unsupported and in a highly dangerous position. Foul play was at first suspected to have been at work, a belief for which there was some foundation, as on the day of the attempted launch the following paragraph appeared in the *Egalétaire*, a Brest Socialistic newspaper :—

> "This afternoon the *Danton*, destined to sow death (unless the Proletariat declines to submit to the experiment), is to be launched. But, it may be asked, will the *Danton* leave the slip? We shall know all about it towards five o'clock, if not earlier."

An enquiry into the mishap was of course held, and after it the Minister of Marine issued a memorandum stating that there was no ground at all for suspecting foul play, and the workmen in the yard are said to have been very indignant at the suggestion. The launching angle of the slip is comparatively small, and it is believed now that the cause of the first failure was due to this and to the ways being insufficiently greased. There was a very high tide on the afternoon of the 4th, and the ship then appears to have glided into the water without difficulty. Her launching weight was 6,500 tons.

The *Danton* is one of the six new large battleships of the so-called 1906-07 programme, and was laid down in February of last year. She is the fourth of the class to take the water; the *Voltaire*, building at the La Seyne yard, was launched on the 16th January, and the *Diderot* and the *Condorcet*, building at St. Nazaire, on the 19th and 20th April respectively. The displacement of these ships is 18,350 tons, and they are all to be fitted with Parsons turbines to develop 22,500-I.H.P., giving a speed of 20 knots. Unlike our *Dreadnoughts*, the armament of the French ships will consist of four 50-calibre 12-inch guns in pairs in turrets fore and aft, twelve 50-calibre 9·4-inch guns in pairs in six turrets, with sixteen 12-pounder and eight 3-pounder automatic guns and two submerged torpedo-tubes. Full details of these ships were given in the Naval Notes (France) in the February number of the JOURNAL.

The Training Ship "Bretagne."—The accommodation of the *Bretagne* training ship for boys, at Brest, has just been doubled by attaching to her as tender the second-class cruiser *Magellan*, which allows of the numbers being increased from 800 to about 1,600. The training of boys is becoming a matter of great importance to the French Navy, in view of the number of specialised ratings now required, and a new Decree has been issued dealing with the regulations for entry, by which the age limit has been extended from 15½ to 15½½ years, so as to give a wider range for recruiting. The designation of the training ship has also been changed from *Ecole des Mousses* to *Ecole des Apprentis Marins et des Mousses*, and as soon as the boys attain the age of 16 they will be required to engage for a term of years, and will be rated *Apprentis Marins*.—*La Vie Maritime* and *Le Temps*.

France.

Précis of M. Chaumet's Report on the Naval Estimates: Suggested Economies.—Continuing his argument as to whether the best use is being made of the money voted for the services of the fleet, M. Chaumet asks whether it is necessary for France, with her reduced fleet, to maintain five naval ports when England has only three of the first importance, and he strongly advocates the suppression of the dockyards at Rochefort and Lorient. The Minister of Marine, however, although agreeing to certain reductions, would not assent to their complete suppression, in view of the Report of the Extra-Parliamentary Committee of Enquiry, which sat in 1894 and unanimously pronounced in favour of the retention of these dockyards. It was pointed out that in the event of war with England, which would necessarily be a *guerre de course*, the French cruisers would need a *point d'appui*, and while Brest and Cherbourg would certainly be blockaded, Rochefort, with three different channels leading to it, would be extremely difficult to blockade, and was the natural base from which the protection of the mouth of the Gironde, the Bordeaux trade, as well as that issuing from or entering the other western seaports, would be assured. Against this view, M. Chaumet points out that several distinguished naval officers now hold strongly that extensive works must be carried out if these ports are to be made available for the fleet, since, certainly as far as Rochefort is concerned, large battleships and cruisers cannot safely enter the Roads of Isle d'Aix or the Trousses, and as they could not ascend the river to the present yard, they could neither be docked nor repaired unless a new yard is constructed at the mouth of the Charente. Naturally, the inhabitants of both places are up in arms against any idea of these dockyards being abolished, and their cause has been warmly advocated by the Deputies who represent them in Parliament; but the question to be faced is, whether the funds available should be divided between five dockyards, the value of two of which is highly problematical, or whether these funds should be concentrated on the three dockyards of capital importance in the event of war, and on which a large expenditure to bring them up to date is urgently required. "If the Navy," writes Commandant Abeille, "is an instrument of war, then the second solution must be adopted; if, on the contrary, the Navy is maintained to satisfy special interests, why then the first." M. Chaumet estimates that the suppression of Lorient and Rochefort would result in a saving of 7 million francs (£280,000).

M. Chaumet then proceeds by means of tables to draw comparisons between the French fleet of to-day and those of England, Germany, the United States, and Japan. Taking Germany first, he draws attention to the gradual, methodical, and steady growth of her fleet. Other countries at the present time have only programmes looking a short way ahead, while from 1912 on their present amount of tonnage will decrease, old ships being eliminated, no provision being made as yet to replace them.

Germany, on the contrary, *knows what she wants and where she is going*. Her programme is laid out as far on as 1918 or 1920. As fast as old ships disappear, others replace them: new units are added. Thus the tonnage of German battleships rises from 244,000, at which it stands at the present time, to 571,00 in 1918, at which figure it is to be maintained. There is the same development in armoured cruisers: from 93,600 tons at the present time, the tonnage increases to 192,600 in 1916, in order to

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maintain it at 180,000 tons. Thus Germany's present intention is to possess in 1918 or 1919 a tonnage of battleships and armoured cruisers of not less than 750,000 tons. Her budgetary efforts are already settled with this object. By this clearness of foresight and her perseverance in action, Germany directs the naval movement. Her power is the unit with which all others have to be compared. She governs the building programme of every country obliged to rival her. If no unforeseen circumstance stops the progress of her ambition, the world will inevitably witness ten years hence a formidable increase of naval expenditure.

Coming next to England, M. Chaumet points out that England, even in 1910, will have a large superiority in tonnage over Germany, but that from 1912 on this superiority will diminish rapidly. M. Chaumet holds that if Great Britain is to maintain the two-Power standard, in view of the number of obsolete ships which will have to be struck off the list, she will have to expend on new battleship and armoured cruiser construction alone during the next ten years at least £100,000,000. In regard to the United States, she at present holds the second place, but by 1913 she will have to take third rank, unless her building programme is sensibly increased, as Germany will then take the second place. More especially must the United States increase her building programme if she intends to maintain the mastery of the Pacific against the Japanese.

Turning once more to his own country, M. Chaumet points out that although in 1910 the French total tonnage of battleships and armoured cruisers will still be superior to that of Germany, viz., 402,000 tons against 337,000, yet to remain even with Germany it will be necessary by 1918 to have 753,000 tons, or 350,000 more tonnage than to-day. To this increase must be added an additional 105,500 tons, representing obsolete ships which will disappear in the interval, making a total additional tonnage necessary of 455,000, representing a sum of nearly a milliard of francs (£40,000,000), or in other words, an annual increase in the cost for new construction of from 100 to 120 million francs (£4,000,000 to £4,800,000). "Is France in a position," he asks, "to make the necessary effort? There is certainly a consensus of opinion that we cannot without compromising our safety, allow our naval power to completely disappear. In any case, at least we must insist on obsolete ships being regularly replaced. For this it will be sufficient to devote to new battleships the money available after the completion of the programme of 1906." M. Chaumet further holds that instead of simultaneously laying down a larger number of ships, it will be far better to lay down a small number and complete them rapidly, by which means also a considerable saving in the cost will be effected.

He concludes by pointing out the necessity of having a clearly-defined naval policy. "The enemies of the Republic," he continues, "allege that our democracy are incapable of determining and carrying out that foresighted policy which can alone secure the restoration of our Navy to its proper position." But in view of the patriotism that has been shown in the reorganisation of the Army, in the securing a Colonial domain, which opens out a field of almost illimitable possibilities in the future, and the valuable alliances and friendships which the country has gained, M. Chaumet has full confidence that France will prove true to herself.—*Rapport par M. Charles Chaumet (Budget Général de l'Exercice, 1909, Ministère de la Marine).*

United States.

Report of the Secretary of the Navy for 1908.—The critics of our naval Bureaus and their work on naval construction will find small comfort in the annual report of the Secretary of the Navy, signed by "V. H. Metcalf"; but they can turn to the message of President Roosevelt for consolation.

Mr. Metcalf says: "While it is easy to criticise, it is exceedingly difficult to demonstrate the practicability of any scheme which would involve radical changes in the present departmental organisation. . . . The business of the Navy Department is so extensive and varied that its grand divisions must of necessity be under the immediate supervision of individuals having special qualifications and training which will fit them for their responsible duties."

He considers the Bureaus in their order, concluding that the Bureau of Navigation "must naturally be under the direct supervision of an officer of the highest attainments and large experience as seagoing officer"; the Bureau of Medicine and Surgery "must be under some official having unusually high attainments as a physician and surgeon"; the Bureau of Ordnance requires expert knowledge that makes it "a necessary and indispensable unit of the departmental organisation"; so with the Bureau of Construction and Repair and Steam Engineering. The Secretary says:—

"Under our system of Government all executive departments are presided over by a civilian, who is in turn directly responsible to the President; and the present Navy Department organisation, which was established more than sixty years ago, was based upon our fundamental system of Government, and was only adopted after a long and unsatisfactory trial of what was in effect a Board of Admiralty, namely, the Naval Commissioners. It may be claimed by some that the increase in the number of Bureaus from five to eight was unfortunate, but since the three new Bureaus were the Bureaus of Navigation, Equipment, and Steam Engineering, it is difficult to see how the Department could get along without at least one of these Bureaus—the Bureau of Navigation. The Bureau of Steam Engineering and the Bureau of Equipment were offshoots from the Bureau of Construction and Repair, and it is possible that a large part of the duties of these two Bureaus could be again consolidated with those of the Bureau of Construction and Repair, as was recommended by some of my predecessors. The whole question of Navy Department reorganisation is, however, exceedingly difficult and complex, and it may be that an entirely satisfactory solution is impossible. In other words, the Navy Department is not only a large business organisation, but is fundamentally an organisation which must make provision for the unknown contingencies of war, and to this extent can never be administered with a view solely to economy."

"They are in error, however, who assert that there is lack of co-ordination of effort in the Navy Department as at present organised, and consequent lack of co-operation in work performed and lack of direct responsibility for errors committed, since my personal experience as Secretary of the Navy convinces me that it would be difficult to find in any large manufacturing establishment or other industrial organisation a greater co-ordination of effort among the heads of large departments than there is now, and has been for some time past, among the heads of the great Bureaus of the Navy Department. I am therefore forced to conclude that, while the present Navy Department organisation may not

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be an ideal arrangement from an economical standpoint, it is very far from being the irresponsible and impracticable organisation which its critics claim it to be; and, while a certain measure of consolidation of duties of the various Bureaus at navy yards and certain consolidations among the Bureaus themselves may hereafter prove desirable, the general principle of definite and explicit responsibility for the various classes of highly technical work under the several Bureaus is sound in theory and practice; that is, moreover, the basis of the organisation of every great industrial establishment, the Navy Department organisation being, of course, more complex in view of the peculiar duties which devolve upon such a military organisation."

The attention of the economists is called to the fact that a comparatively small percentage of the naval appropriation is devoted to the repair and maintenance of the *matériel* of the fleet, and that the Navy Department has been for many years past an exceedingly economical purchaser.

The carrying out of the plans and arrangements for the cruise of the Battle-ship Fleet without change of modification reflects great credit on the several Bureaus concerned, and particularly on the Bureaus of Steam Engineering, Equipment, Supplies and Accounts, and Construction and Repair. The prophecies as to the demoralised condition of the *matériel* after such a cruise have not come true. The ships have practically taken care of their own repairs during the voyage. The effect of the cruise upon the discipline of the men has been beneficial. Too much cannot be said of the magnificent conduct of the enlisted *personnel* during the voyage. The cruise has brought to the front the element of greatest strength in our Navy—the personal characteristics of the enlisted force. The tact, ability and mastership of their profession shown by the officers, from the lowest to the highest, is likewise worthy of earnest commendation. "Whatever may be said in technical criticism of the Navy, the people know as a result of the cruise that the vessels will float, that the officers and men can handle them, and that so far as the tests of peace can show, the ships and the men are fit in every particular for any duty.

There has been progress in the development of torpedo craft, both surface and submarine. The enthusiasm and zeal displayed by the officers and men of these craft point to real efficiency, and indicate that they will prove valuable auxiliaries to the Service in time of need. All Navies are now engaged in building battleships of large displacement and high speed, with main battery guns of the largest calibre. They are also building scouts or armoured cruisers, of displacements ranging from 3,500 to 5,000 tons, lightly armed but of very high speed, twenty-three to twenty-six knots, as well as torpedo craft, including destroyers and submarine. In torpedo craft the tendency to increase displacement and speed continues, and in the submarines which all countries are building the tendency here, too, is towards increase of size and speed. The rapidity with which vessels are built in England and Germany is noteworthy.

There are seven submarine torpedo-boats of an improved type now building under contract by the Electric Boat Company, and an agreement has been made with the Lake Torpedo Boat Company to accept for trial one of the Lake type, to be purchased if found satisfactory. Marked progress has been made in the rapidity of ship construction by shipbuilders of the country.

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Recent criticism stirs the Secretary to dwell upon the method of adopting the plans for the *North Dakota* and *Delaware*. Designs were accepted from designers outside the Government, and a Board, of which five were seagoing officers, approved the plans prepared by the Board of Construction. In view of this exhaustive consideration given to the plan of those two ships, the Secretary feels no hesitation in saying that the designs of the *North Dakota* and *Delaware* are superior to those of any battle-ship now in course of construction for any other Navy.

Notable progress has been made in the year in marksmanship with guns of all calibres. The enthusiastic interest of officers and men has been stimulated by the present system of competitive target practice between individual guns and ships, leading to a marked increase in rapidity of hitting over former years and to important improvements in ordnance *matériel*. Improvements in powder and projectiles have been the chief features in the development of ordnance in the year.

The Medical Corps is congratulated on the character of the work performed in the twelve months. An appropriation of 135,000 dollars is recommended for completing and finishing the crypt of the chapel at Annapolis for the resting place of the body of John Paul Jones. The rehabilitation of the older naval hospitals has become necessary. Nearly 2,000,000 dollars will be required to place the hospitals on a proper peace-time basis. Noteworthy work has been done at the naval sanitorium at Las Animas, Colo. Other hospital work projected includes hospitals at Hawaii, Guantanamo, Samoa, Guam, San Juan, and Charleston, S.C., and the enlargement and renovation of the hospital at Pensacola, the only naval hospital on the Gulf.

The report sees no reason why the Pay Corps should be the only seagoing corps in the Navy to which the privilege is denied of promotion to the next higher grade three years after the date of first commission, and a change in this direction is recommended. Of the allotment of 151,000 dollars for the use of the Navy at the Jamestown Exposition, there is an unexpended balance of 62,303 dollars. Under the new system of Navy mail clerks, it is believed mail matter addressed to or sent from vessels of the Navy will be handled more safely and quickly. The Naval Young Men's Christian Association has continued to do good work for the enlisted men of the Navy and Marine Corps. The total amount of money invested in the association property and endowment funds, actual or pledged, is nearly 1,750,000 dollars.

There were 6,829 summary courts-martial. A change is urged in the present law to the effect that the entire sentence of a summary court shall go into effect at once upon approval of the C.I.C., or in his absence by the senior officer present. At least two officers of the rank of vice-admiral should be in the Navy. The pay of these should be the pay of the senior nine admirals. If there is objection to increasing the number of officers of high rank, the number of rear-admirals can be reduced by two.

The immediate development of a naval base at Pearl Harbour, H.I., is a matter of high importance. The troubles at the New York Navy Yard in the building of the new dry dock have at last been mastered, and the work should be completed in a reasonable time. The dock at Mare Island, Cal., should be in operation early in the coming year. Though the dock at Philadelphia has not been accepted, owing to difficulty with the machinery, it has been in practical use for more than a year. The floating dry dock *Dewey*, now at Olongapo, P.I., has proved very useful, and

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has saved large sums for dockage. The new dock at Norfolk should be ready for operation this month, and the one at Charleston about the beginning of February. The recommendations of the General Board, that repair and refitting work on naval ships should be concentrated in the large navy yards, and that the smaller ones should be done away with as opportunity presents, is concurred in. The improvement of the approaches to Portsmouth, Norfolk, and Mare Island enable battle-ships and armoured cruisers to reach those yards. Purchase or construction of a dry dock at San Francisco is recommended.

The report of the Board on the improvement of the approach to Mare Island will be laid before Congress. The work and duties of the different Bureaus are gone over to prove the necessity for separate existence. The Secretary points out that the Navy has for many years been an exceedingly economical purchaser, this being in answer to the oft-repeated accusation that the millions spent annually for the Navy are due to lack of economical administration. Further economy can be effected by making changes in the organisation of the manufacturing departments of the yards, and tentative changes with that end in view are now in course of trial.

This is the building programme for the coming year of the General Board, in which the Department concurs: Four battle-ships, four scout cruisers, ten destroyers, four submarines, three colliers, one repair ship, one ammunition ship, and two mine-laying ships. For the last two, two cruisers will be converted. The report holds that the scout cruisers should number one for each battle-ship, and should be of the *Salem* type.

The Secretary publishes the table given below, which gives the latest information on the subject of the relative strength of the Navies of the world, showing that our own Navy holds third place. The total tonnage of the war-ships of the eight nations named is 4,455,428, as follows:—

Great Britain, 1,669,005; United States, 685,426; France, 628,882; Germany, 524,573; Japan, 371,891; Russia, 240,943; Italy, 220,458; Austria, 114,250. The total when vessels now building are completed will be 5,334,502, as follows: Great Britain, 1,871,176; France, 801,188; United States, 770,468; Germany, 693,599; Japan, 444,903, Russia, 320,040; Italy, 284,778; Austria, 148,350. The following vessels are not included in the tables: Those over twenty years old, unless they have been reconstructed and re-armed since 1900. Those not actually begun, although authorised. Transports, colliers, repair-ships, torpedo depôt ships, converted merchant vessels, or yachts. Vessels of less than 1,000 tons, except torpedo craft. Torpedo craft of less than 50 tons.

Another table gives the *personnel* of the five leading Navies:—

Rank.	England.	France.	Germany.	Japan.	U. States.
Flag officers	96	45	33	53	18
Capts. and comdrs.	610	355	258	259	182
Other line officers and engrs.	3,268	1,802	1,719	1,798	795
Medical officers	501	377	210	318	296
Pay officers	571	201	205	277	201
Warrant officers	1,987	1,793	2,036	1,404	604
Enlisted men	99,319	44,577	47,286	41,966	42,400
Marine officers	520	—	103	—	268
Enlisted men (marines) ...	17,844	—	1,365	—	9,293

War-ship tonnage of the principal naval powers, number and displacement of war ships, built and building, of 1,000 or more tons, and of torpedo craft of more than 50 tons—November 1, 1908.

Type of Vessel.	Great Britain.				France.				United States.				Germany.			
	Built.		Building.		Built.		Building.		Built.		Building.		Built.		Building.	
	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.
Battle-ships, first-class (*a*)	52	753,650	6	113,550	18	227,420	6	110,100	25	334,146	4	72,000	22	256,067	6	97,964
Coast-defence vessels (*b*)	—	—	—	—	11	65,800	—	—	11	45,334	—	—	8	32,378	—	—
Armoured cruisers	35	419,250	3	49,100	21	192,982	2	28,000	12	157,445	—	—	8	78,693	2	35,200
Cruisers above 6,000 tons (*c*)	18	176,250	—	—	3	24,409	—	—	5	43,800	—	—	—	—	—	—
Cruisers 6,000 to 3,000 tons (*c*) ...	43	191,130	2	6,650	13	52,549	—	—	20	72,620	—	—	20	82,363	6	21,672
Cruisers 3,000 to 1,000 tons (*c*) ...	25	53,505	—	—	10	20,540	—	—	14	18,058	—	—	17	37,626	—	—
Torpedo-boat destroyers	144	55,500	*d*23	21,491	44	13,724	*d*28	12,950	16	6,690	*d*15	10,900	64	29,447	*d*21	13,470
Torpedo-boats	48	8,182	23	6,180	256	24,206	10	970	32	5,615	—	—	42	7,639	—	—
Submarines	44	11,538	16	5,200	44	7,252	50	20,286	12	1,718	7	2,142	2	360	4	720
Total tons built & total tons building	—	1,669,005	—	202,171	—	628,882	—	172,305	—	685,426	—	85,042	—	524,573	—	169,026
Total tons built and building ...		1,871,176				801,188				770,468				693,599		

Type of Vessel.	Japan.				Russia.				Italy.				Austria.			
	Built.		Building.		Built.		Building.		Built.		Building.		Built.		Building.	
	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.
Battle-ships, first-class (*a*)	11	152,548	2	38,950	5	62,600	4	58,600	11	143,054	2	24,850	3	31,800	2	29,000
Coast-defence vessels (*b*)	3	18,786	—	—	4	21,380	—	—	—	—	—	—	6	41,700	—	—
Armoured cruisers	11	108,900	2	29,200	5	54,200	2	16,000	6	39,200	4	39,320	3	18,800	—	—
Cruisers above 6,000 tons (*c*)	2	13,130	—	—	7	46,460	—	—	—	—	—	—	—	—	—	—
Cruisers 6,000 to 3,000 tons (*c*) ...	9	34,727	1	4,100	1	3,100	—	—	1	3,530	—	—	2	8,000	1	3,500
Cruisers 3,000 to 1,000 tons (*c*) ...	8	16,138	—	—	7	8,800	—	—	9	12,320	—	—	3	7,050	—	—
Torpedo-boat destroyers	55	19,824	2	762	93	33,834	4	2,420	17	5,593	—	—	6	2,400	—	—
Torpedo-boats	63	6,312	—	—	57	6,834	—	—	61	9,054	—	—	35	4,500	—	—
Submarines	10	1,526	—	—	25	3,735	6	2,077	5	707	1	150	—	—	6	1,600
Total tons built & total tons building	—	371,891	—	73,012	—	240,943	—	79,097	—	220,458	—	64,320	—	114,250	—	34,100
Total tons built and building ...		444,903				320,040				284,778				148,350		

a Battle-ships, first-class, are those of (about) 10,000 or more tons displacement. *b* Includes smaller battle-ships and monitors.

c All unarmoured warships of more than 1,000 tons are in this table classed according to displacement as cruisers. Scouts are considered as cruisers in which battery and protection have been sacrificed to secure extreme speed. The word "protected" has been omitted because all cruisers except the smallest and oldest now have protective decks.

d Of these England has recently placed contracts for 14, France for 7, United States for 10, and Germany for 12.

MILITARY NOTES.

Home. The following are the principal appointments which have been made:—

General—Sir Robert C. Low, G.C.B., to be Keeper of the Jewel House, Tower of London. Colonel—F. C. Carter, C.B., to Command 16th Infantry Brigade (6th Division, Irish Command), with temporary rank of Brigadier-General.

Territorial Force.—Colonels—H. Martin, C.B., to Command South Scottish Brigade (Lowland Division); W. Scott-Moncrieff to Command Lothian Brigade (Lowland Division).

Indian Army.—Major-Generals—Sir Alexander J. F. Reid, K.C.B., to be Colonel of the 29th Punjabis; Sir Arthur A. Barrett, K.C.B., to be Adjutant-General in India.

Presentation of Colours by the King to Territorial Units.—On the afternoon of Saturday, the 19th ult., His Majesty the King, on the East Lawn of Windsor Castle, in the presence of Her Majesty the Queen, the Prince and Princess of Wales, the Duke of Connaught, Prince Arthur of Connaught, and other Royal and distinguished personages, presented Guidons and Colours to units of the Territorial Force.

The detachments of the Territorial Force, in order of precedence, were formed up in three sides of a square, under the command of Colonel the Hon. C. E. Bingham, 1st Life Guards, and the representatives of the Brigade of Guards attending the parade, and the Colour parties of the Territorial Force, under the command of Lieut.-Colonel G. C. Nugent, Irish Guards, received His Majesty with a royal salute.

The consecration of the Colours was performed by the Right Rev. Bishop Taylor Smith (Chaplain-General to the Forces), assisted by other Chaplains representing the different religious denominations. The ceremony of presenting the Colours was then proceeded with, His Majesty placing his hand upon them in turn, and they were then handed to the officers of the Colour party. The Guidons and Colours then moved down the front of the representative detachments and took up position in front of their own detachments.

On the command the officers bearing the Guidons and Colours turned about and faced their detachments, when the troops saluted the Colours with a general salute. The Colours having been turned to the front, the troops gave a royal salute, and three cheers were then given for the King.

The following is a list of the Territorial units that received Guidons and Colours from the King:—

Yorkshire Dragoons, North Somerset Yeomanry, Hampshire Yeomanry, Herts Yeomanry, Montgomery Yeomanry, Lothian and Border Horse, Q.O.R. Glasgow Yeomanry, Sussex Yeomanry, 2nd County of London Yeomanry, Essex Yeomanry, 1st Scottish Horse, 2nd Scottish Horse, 7th Middlesex Regiment, 8th Middlesex Regiment, 5th East Surrey Regiment, 5th Notts and Derby Regiment, 6th Notts and Derby Regiment, 4th Oxford and Bucks Light Infantry, 4th Cheshire

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Regiment, 5th Royal Sussex Regiment, 6th Royal Scots Regiment, 9th Royal Scots Regiment, 6th Essex Regiment, 5th Northumberland Fusiliers, 6th Northumberland Fusiliers, 7th Northumberland Fusiliers, 5th Argyll and Sutherland Highlanders, 6th Argyll and Sutherland Highlanders, 4th Northampton Regiment, 4th Dorset Regiment, 5th South Staffordshire Regiment, 6th South Staffordshire Regiment, 4th Royal Berkshire Regiment, 4th Gloucester Regiment, 6th Gloucester Regiment, Brecknock Battalion S.W. Borderers, 4th Suffolk Regiment, 5th Suffolk Regiment, 7th Argyll and Sutherland Highlanders, 8th Highland Light Infantry (Lanark), 4th East Kent Regiment, 4th Royal West Kent Regiment, 5th Royal West Kent Regiment, 5th Welsh Regiment, 6th Welsh Regiment, 7th Royal Welsh Fusiliers, 5th West Yorkshire Regiment, 6th West Yorkshire Regiment, 4th West Riding Regiment, 5th West Riding Regiment, 6th West Riding Regiment, 4th K.O. Yorkshire Light Infantry, 5th K.O. Yorkshire Light Infantry, 4th York and Lancaster Regiment, 5th York and Lancaster Regiment, 4th Leicester Regiment, 5th Leicester Regiment, 7th Royal Scots Regiment, 5th Gordon Highlanders, 4th King's Own Scottish Borderers, 2nd Monmouth Regiment, 3rd Monmouth Regiment, 4th Seaforth Highlanders, 7th Worcester Regiment, 8th Worcester Regiment, 4th Cameron Highlanders, 5th Royal Warwickshire Regiment, 6th Royal Warwickshire Regiment, 7th Royal Warwickshire Regiment, 8th Royal Warwickshire Regiment, 4th Lincolnshire Regiment, 5th Lincolnshire Regiment, 4th Royal Welsh Fusiliers, 5th Hants Regiment, 6th Hants Regiment, 7th Hants Regiment, 4th Somerset Light Infantry, 5th Somerset Light Infantry, 1st Cambridge Regiment, 1st City of London Battalion, 2nd City of London Battalion, 3rd City of London Battalion, 4th City of London Battalion, 7th City of London Battalion, 13th County of London Battalion, 14th County of London Battalion, 19th County of London Battalion, 23rd County of London Battalion, 24th County of London Battalion, 4th East Yorkshire Regiment, 1st Hertford Regiment, 5th King's Own Scottish Borderers, 6th Black Watch (Royal Highlanders), 5th Durham Light Infantry, 7th Durham Light Infantry, 8th Durham Light Infantry, 9th Durham Light Infantry, 4th Yorkshire Regiment, 5th Yorkshire Regiment, 5th Border Regiment, 1st Hereford Regiment, 7th Black Watch (Royal Highlanders), 6th Gordon Highlanders, 5th Royal Welsh Fusiliers, 5th Highland Light Infantry, 6th Highland Light Infantry, 7th Highland Light Infantry, 9th Highland Light Infantry.

Memorandum by the Army Council on the Existing Army System and on the Present State of the Military Forces in the United Kingdom.—In view of doubts which have lately been expressed in regard to the effective strength of the Regular Forces and their readiness for war, and with the desire of removing misunderstanding as to the purpose and effect of recent changes in organisation, the Army Council desire to place on record their views on the subject, and those of the Inspector-General of the Forces, as embodied in this memorandum and the annexes thereto.

The organisation of the Regular Army, with its Reserves, as it exists to-day, is based on the principles which guided the Localisation Committee of 1872. That Committee, which included Sir Patrick MacDougall, Colonel Garnet Wolseley, and Mr. Ralph Knox, approached the subject of Army organisation primarily from the war point of view, though they did

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not lose sight of the essential requirements of peace time. But their main thesis was the following: That the sole object of any military system in peace is to provide for a state of war, and the test of any peace organisation must be its power—

1st, To place in the field immediately on the outbreak of war, in the highest state of efficiency, as large a force as is possible within the limits of the approved peace military expenditure.

2nd, To maintain that force throughout the continuance of hostilities, undiminished in numbers and efficiency.

The means by which the Committee proposed to fulfil these objects are especially worthy of attention, inasmuch as it is evident that they were fully aware of certain shortcomings which have since been represented as fatal defects in the system which they inaugurated. They realise, for instance, that the Reserve produced under any terms of service which were possible, having regard to the maintenance of our foreign garrisons in peace, would only suffice, approximately, in the event of mobilisation, to raise the home battalions to war establishment. The fact, however, that the first of their objects, namely, the mobilisation of the home cadres, could, under their proposals, be effected without weakening or destroying other cadres represented in itself a great advance on anything which had obtained hitherto. The initial mobilisation of the battalions sent to the Crimea was only effected by drawing largely on battalions which did not form part of the Expeditionary Force.

Moreover, the Localisation Committee recognised that the second of their objects, namely, the maintenance in the field of an Expeditionary force could not, having due regard to peace military expenditure, be attained on a purely regular basis. They stated that this requirement would have to be met by utilising the Militia. "The completion of the expeditionary battalions to war strength," they reported, "forms the smallest part of the task imposed on the administrators of the Army. These battalions must afterwards be maintained in the field in undiminished numbers and efficiency. For the supply of war casualties the men of the Militia Reserve would form a valuable element. . . . The objection has been urged that Militia regiments would be deteriorated by the transfer of their best men to the Regular Army in the field, but the question for consideration is not what is best for the efficiency of this or that service taken alone, but what is best for the military interests of the nation, and whether it is preferable to send raw recruits from the plough to fill up gaps in the ranks of an army in the field, or to pass those raw recruits through the Militia mill first, and to take for the supply of war casualties Militiamen who would have acquired some notions of drill and discipline." It is quite clear from their report that the Committee contemplated the Militia becoming in time of war for all practical purposes part and parcel of the Line. Thus they recommended that during a war all enlistments should be for general service in the Line and Militia battalions of any brigade district. In other words, the Militia as draft-producing machinery for the Line in time of war formed an essential feature of what is known as the Cardwell system.

In spite of much adverse criticism, this system gradually assumed the shape that its originators intended. In 1891-2 it was subjected to searching enquiry by the Wantage Committee, both from the peace and from the

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war point of view. It was then distinctly stated in evidence that the system was not popular with Militia commanding officers, who were very jealous about any increase in the Militia Reserve; but in spite of this fact, the Cardwell system as a whole was upheld and endorsed by the Committee, who also recommended in their report that the Militia Reserve should be increased.

Prior to the outbreak of the South African War no organic changes in the Cardwell system were introduced, and under the operation of that system no less than 228,171 officers and men of the Regular Army were sent from home to South Africa between 1st August, 1899, and 31st May, 1902.

But one effect of the war was to intensify the discontent of Militia commanding officers with the *rôle* that had been assigned to them under this system.

In June, 1900, certain proposals regarding the Militia were laid before the Secretary of State, and amongst these proposals was one to abolish the Militia Reserve, which it was alleged was an institution detested by the whole force, with the possible exception of the members of the Reserve itself.

In September, 1900, the Commander-in-Chief, Lord Wolseley, expressed his disapproval of any such step. Not until the Reserve could furnish double the number of infantry Reserve soldiers that was forthcoming at the outbreak of the South African War would it be possible, in his opinion, to give any serious consideration to such a proposal.

In October, 1900, the Secretary of State decided to abolish the Militia Reserve, and enlistment was stopped for this force by Army Order in April, 1901. This departure from the system which had obtained since 1872 formed part of a far-reaching scheme of reorganisation, the chief feature of which was an attempt to render the Regular Army self-supporting in war by the formation of a large Reserve of men who were to be enlisted for three years' service with the colours and nine in the Reserve. By this means the necessity for retaining the Militia Reserve would, it was hoped, disappear, and the Militia would thus be left free to develop into a self-contained Second Line Army, untrammelled by the obligation of finding drafts in war for the Regular Army. It must be observed, however, that the release of the Militia from the position this force had held under the Cardwell system could only be justified on the assumption that the new terms of enlistment for the Regular Army proved successful, and this fact was not lost sight of by the military authorities.

As is well known, the new recruiting rules, *i.e.*, three year' colour service for all arms, introduced under Army Order 73 of 1902, did not answer. These rules could not have met our peace foreign service requirements unless about 75 per cent. of the men had extended their three years' colour engagement. The actual percentage of extensions in the infantry varied from 20·7 per cent. in 1903-04 to 36·53 per cent. in 1905-06. In other words, in spite of every effort that was made, the drafts required for the maintenance of our Indian and Colonial garrisons were not forthcoming.

To safeguard the drafts for garrisons abroad it became necessary to introduce provisionally a longer period of colour service, and under a Special Army Order dated 20th October, 1904, service in the infantry of

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the Line became nine years with the colours and three in the Reserve. Under these terms of service, unless it had been found possible to convert the Militia and part of the Regular Army into a short-service Home Army for Reserve-producing purposes, our position as regards mobilisation would rapidly have become worse than ever it had been since 1872. The Reserve that could be produced under a system of nine years' colour service and three years' Reserve service would barely suffice even to mobilise the home battalions, still less to maintain them in the field. The Militia Reserve had ceasd to exist, and Militia commanding officers objected as strongly as ever to this Reserve being reinstituted. Obviously the Regular Army could not be left permanently in such a position.

But after a trial with seven Line battalions towards the end of 1905, the administrative difficulties which presented themselves in placing the Militia and the requisite proportion of the Regular Army on a short-service and Reserve-producing basis so impressed the Army Council that in 1906 they decided to revert to the system originally introduced, or rather intended, by the Localisation Committee of 1872. The old terms of service of seven years with the colours and five with the Reserve have been restored for the Infantry, and under the provisions of the Territorial and Reserve Forces Act of 1907, the whole of the Militia, in the shape of a Special Reserve, has been brought into closer relations with the Regular Army. By means of the restoration of the old terms of service, the mobilisation of the infantry units at home is once more safeguarded, and owing to the affiliation of the Special Reserve to the Regular Army, the maintenance of the units in war for a period of six months at least is also assured. Further 74 Reserve battalions, whose main function it would be to train drafts for the battalions in the field, will by the new arrangement automatically come into being on mobilisation, and the unsatisfactory expedient of raising provisional battalions for this purpose, as happened during the South African War, will in future be avoided.

These Reserve battalions will also be utilised in the scheme for home defence; and in addition to them there are 27 extra Reserve battalions which will be available either for home defence or to reinforce over-sea garrisons or the army in the field.

In brief, the measures taken by the Army Council since 1905 have been directed to the maintenance of the fundamental principles of 1872 and to the organisation, on those principles, of the strongest expeditionary force which can be mobilised and maintained in the field within our existing resources in men and money, consistently with the obligation to maintain the over-sea garrisons. To this end the peace establishments of the several arms and units of the Regular Army and the Special Reserve, and the terms of service in each, have all been methodically adjusted to the production in peace of the drafts required for foreign service and in war of the men required to mobilise and maintain the field force in due proportion of the several arms. Establishments which, judged by this standard, were redundant have been reduced, while new organisations have been developed to strengthen the establishments which were deficient.

There are four tabulated appendices to the memorandum, comparing the forces available in 1905 and 1909 respectively. These, summarised, show the following results:—

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	1905.	1909.
1. Officers serving in the United Kingdom, liable for service abroad.	7,463	10,157
2. N.C.O.s and men serving in the United Kingdom liable for service abroad and available by age and service	185,823	265,515
3. Gross number of warrant officers, N.C.O.'s, and men serving at home, liable for service abroad.	222,683	329,592

	1905.		1909.	
	Establishment.	Strength.	Establishment.	Strength.
4. *Personnel* liable for service in the United Kingdom	502,375	371,091	313,314	263,507

To this Memorandum was attached a Report by the Inspector-General of the Forces (General Sir John French), dated 12th November, 1908, of which the following is a *Précis* :—

General Report.—Speaking generally, the conclusion I have drawn, both from my observation and inspection of forces at home during the current year, is that our Field Army, as regards knowledge and training, is in a high state of efficiency, and well prepared to take the field at the shortest notice.

The musketry training of the Army is in a very satisfactory condition.

As regards the fire practice of Artillery, the standard reached appears to be quite satisfactory.

Cavalry.—I consider that the brigades are efficient and well led, and that they are fit, as brigades, for active service in the field. When working together as a division, however, the lack of control over the brigades, and the want of combination between them, convince me that the Cavalry Division has not yet reached that state of efficiency which is necessary to enable it to perform properly the duties which are required of it in war.

Infantry.—Although the company and battalion training witnessed this year was considered, on the whole, satisfactory, and attained to a very fair standard of efficiency, certain causes (some no doubt unavoidable) would appear to have prevented such training from being as progressive and continuous as is obviously intended by the Regulations and Training Manuals.

Special Reserve.—The Artillery special reservists are of a good type, and are progressing satisfactorily with their training. The Infantry special reservists vary a good deal in physique and are not, generally, up to the physical standard of the Artillery reservists.

Territorial Force.—During this year of transition I have thought it advisable to refrain from any complete inspection of the Territorial

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Force. I therefore visited only the West Riding Territorial Division in its camp at Redcar. The result of this first inspection of a concentrated Territorial Division is, in the highest degree, satisfactory and most encouraging. The important point to notice is the extraordinary keenness, the desire to make progress, the zeal, and the energy displayed by all ranks from general to private.—*Standard.*

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The Army Estimates for 1909.—The Army Estimates for the current year were voted by the Delegations as presented by the Common Minister of War for the Dual Monarchy, without modification.

The Ordinary Budget for the Common Army amounted to 322,609,197 crowns (£13,442,049), as compared to 306,552,435 crowns (£12,773,018) for 1908, showing an increase of 16,056,762 crowns (£669,031).

The Extraordinary Budget amounted to 12,366,730 crowns (£515,280), as compared with 13,378,729 crowns (£557,447) for 1908, showing a decrease of 1,011,999 crowns (£42,166). The Supplementary Estimates on account of the corps of occupation in Bosnia-Herzegovina amount to 8,127,000 crowns (£338,625), as against 7,868,000 crowns (£327,833) for 1908, showing an increase of 259,000 crowns (£10,791). The grand total amounts to 343,102,927 crowns (£14,295,955), as against 327,799,164 crowns (£13,658,298) for 1908, showing an increase of 15,303,763 crowns (£637,657).

The corresponding Budgetary effectives voted are as follows :—

Ordinary Budget.—Officers, 16,658; officials, 4,630; subaltern employés, 926; cadets and re-engaged non-commissioned officers, 18,162; non-commissioned officers and men, 264,507; horses, State, 60,612; officers, 10,316.

Extraordinary Budget.—Officers, 6; officials, 21; subaltern employés, none; cadets and re-engaged non-commissioned officers, none;; non-commissioned officers and soldiers, 3,690; horses, none.

Supplementary Corps of Occupation.—Officers, 178; officials, 268; subaltern employés, 51; cadets and re-engaged non-commissioned officers, none; non-commissioned officers and men, 3,235; horses, State, 1,667; officers, 139.

Making a total of 16,842 officers, a decrease of 29 as compared with 1908; 4,919 officials, an increase of 75; 977 subaltern employés, an increase of 29; 18,162 cadets and re-engaged non-commissioned officers, a decrease of 405 of the non-commissioned officers; non-commissioned officers and men, 271,432, an increase of 272. Horses, State, 62,279, a decrease of 584; to officers, 10,455, a decrease of 216.

Mobile Field Kitchens.—The Army, as has been announced to the Delegations, is to be supplied with field kitchens. According to the *Neue Freie Presse*, trials have reached an advanced stage, and the supply of these kitchens to the troops is now only a question of time.

The great advantage which these field kitchens offer is the relieving the men from the work of preparing their meals on their arrival in camp, and thus having them in a better state of readiness for fighting or security service duty. Moreover, under the present system, the late issue of rations often only allows of the men preparing their meal at night,

although sometimes fighting has to be renewed with the daylight. It will be very different when the mobile kitchens are supplied, as they will provide the men with their mid-day meal on the march, and the evening one on arrival at camp, while the cooking of the food will be infinitely better than of old.

Several systems with one or more coppers have been experimented with by the Ministry of War—among others, one with three coppers submitted by the Ottakringer factory. A Norwegian copper for 25 men replaces the mobile kitchen for the mountain troops, the train, and the railway and telegraph companies.

The number of kitchens required will be about 4,000 (1 per company, squadron, battery, and hospital detachment). The cost will amount to 12,000,000 crowns (£500,000).

According to the same journal, orders have already been given to supply half the units of the Common Army and the *Landwehr;* the latter force has definitely decided to adopt the "Ottakringer," the cost of which is no higher than the others.—*Revue Militaire des Armées Etrangères.*

The New Military Governor of Bosnia-Herzegovina.—In view of the very strained political and military situation of the newly annexed provinces of Bosnia and Herzegovina, much interest has been shown in the appointment of a new Military Governor.

By an Imperial Decree of 7th March last, the former Governor, General of Cavalry Coler von Winzor, was recalled, the reason given being that the impending grant of a Constitution to the annexed country necessitated the Governor being in intimate relation with the population and their representatives, for which a good knowledge of the language was indispensable, which General Winzor did not possess. In recognition of his great services, however, the Emperor has conferred on him the rank of Freiherr (Baron), and he has been appointed Commandant of the Vth Army Corps (Pressburg).

The newly-appointed Governor of the annexed provinces is General of Infantry Varešanin von Vareš, recently Military Commandant of Dalmatia, who thus takes over the administration of Bosnia and Herzegovina, at a very critical time, both military and politically. Although he has never played a political *rôle*, the new Governor is well known as a particular friend of the Croats, to which race he belongs by birth, and makes no secret of his pride in his nationality. A few years ago he was made the object of violent attacks in the Hungarian Press, who complained of his supposed anti-Magyar tendencies; but there was no ground whatever for these attacks. During a long period of active service, both in Dalmatia and Bosnia-Herzegovina in extremely responsible posts, General Varešanin has acquired a perfect knowledge of the country and its inhabitants; their manners, their customs, their economic condition, the causes of their material wellbeing or their reverse are better known to him than others, because he has never feared to enter into close relations with all classes of the population, even the lowest. The XVth Army Corps and all the races of Bosnia and Herzegovina, with the exception perhaps of the Serbs, bear testimony to his cordial *bonhomie*. His great popularity, his charming personality, and his great tact in dealing with the native

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population make it almost a certainty that he will succeed in reconciling all the incongruous, ethnical and religious elements.

Moreover, General Varešanin possesses the absolute confidence of his army corps, while his perfect knowledge of this mountainous and difficult country, which may not improbably be the future theatre of a war, will stand him in good stead. He has had the opportunity of appreciating those who would be his adversaries, and as Military Commandant of Dalmatia he has had many opportunities of showing that he can handle large masses of troops in unfavourable country in face of an enemy without wearying his men out. His long term of service in this country has also enabled him to familiarise himself with the modern tactics of the fleet and to become personally acquainted with its heads. This is a matter of some importance, because the defence of Bosnia, Herzegovina, and Dalmatia will call for close collaboration between the fleet and the Army. Thus, from both the military and political point of view, the general is the right man in the right place.

His successor in the post of Military Governor of Zara is Lieut.-General Fanta, lately commanding the 36th Infantry Division at Temesvar. —*Revue Militaire Suisse.*

New Howitzer for Mountain Service.—Up to the present time the mountain artillery has only consisted of field guns and howitzers mounted on narrow axle-treed carriages. This *matériel* was not satisfactory, especially from the fact that these howitzers, in spite of their narrow axle-trees could not accompany the troops everywhere. In the high mountains, moreover, there are frequently places which escape the view, and cannot even be reached by indirect fire from the guns. Thus, even more than the field artillery, the mountain artillery has imperative need for more powerful howitzers—a need which, no matter what the cost may be, must be met as soon as possible.

The Technical Committee at Vienna has succeeded, after some years of experimenting, which have been carried out with various weapons submitted by the Skoda Gun Factory at Pilsen and the Krupp firm at Essen, in obtaining a mountain howitzer which in a great measure comes up to the required conditions, and will be a valuable addition to the mountain artillery.

This new gun, which is called the 10-cm. (4-inch) mountain howitzer, model 8, is made of compressed bronze at the Skoda Works, and weighs 320 kg. (700 lbs.). The mounting is constructed in two pieces, which can be taken apart; it is not what is termed a recoil-mounting, but a number of technical special arrangements counter-balance this special point; moreover, no one has yet discovered a system of recoil carriage for mountain howitzers to which there are not some objections. This howitzer has a range of 5,000 metres for shrapnel and 6,000 for shell, wth a *maximum* elevation of 70° and 10° of depression; its rate of fire is 10 rounds a minute. It will be mounted on a carriage with a narrow axle-tree drawn by two mountain horses, driven tandem, the ammunition being carried in two-wheeled carts. There will be three kinds of projectiles employed, viz., shrapnel, common shell, and torpedo shell. To protect the men working the gun there is a steel shield 7-mm. (¼-inch) thick. The carriage is

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fitted so that it can be placed on sledges if necessary at difficult parts of the road.

Four howitzers, with their munitions, provision and baggage carts, will form a battery. The military administration proposes to form in the sector of the XVth Army Corps at Serajewo, as has already been done in the Tyrol, special groupings of field howitzers.

Field Artillery Telephone Equipment.—The intention of the military authorities to supply the field artillery with a telephonic equipment has already been mentioned; this will be carried out, according to latest arrangements, as soon as the arming of the field artillery with the new carriage recoil gun is completed.

Every battery will have a wagon and telephone detachment supplied with 3 kilometres (3,280 yards) of wire and a station. In reserve with each regiment will be a further 10 kilometres (6¼ miles) of wire and another station, so that each regiment will have at its disposal 22 kilometres (13¾ miles) of wire and 5 stations.—*Revue Militaire Suisse* and *Revue d'Artillerie.*

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The Strength of the Officers' Corps.—The Officers' Corps on the 1st of April of this year consisted of 403 generals, 676 commandants of regiments, 2,312 staff officers, 6,425 captains and Rittmeister, 4,797 first lieutenants, and 10,946 lieutenants, making a total of 25,559 officers. Out of the 403 generals, 311 are Prussians, 51 Saxons, 15 Wurtembergers, 45 Bavarians, of whom 2 belong to the Military Tribunal of the Empire. Out of the 676 regimental commanders, 516 are Prussians, 51 Saxons, 27 Wurtembergers, 78 Bavarians, 4 of whom belong to the Supreme Military Tribunal. The 6,425 captains and Rittmeister are divided as follows: 4,998 are Prussians, 453 Saxons, 247 Wurtembergers, and 727 Bavarians; 3,732 first lieutenants are Prussians, 347 Saxons, 179 Wurtembergers, and 539 Bavarians. Of the lieutenants, 8,560 are Prussians, 791 Saxons, 401 Wurtembergers, and 1,194 Bavarians. In *résumé*, the four States mentioned contribute respectively a total number of 19,903, 1,837, 961, and 2,850 officers.

There are 2,282 military doctors, of whom 1,756 are Prussians, 168 Saxons, 89 Wurtembergers, and 269 Bavarians. Eighty-four of these are officers of the general staff and inspectors-general; the others are divided between the superior staffs, the staffs of units, and the units themselves.

The veterinary surgeons number 691, of whom 538 are Prussians, 53 Saxons, 27 Wurtembergers, and 73 Bavarians; and there are also 2,303 accountant officers.—*Revue Militaire Suisse.*

The Telephone and the Field Artillery.—According to the *Militärische-politische Korrespondenz*, the batteries and group staffs of the field artillery are now provided with the telephone. The employment of the telephone for the transmission of orders and reports during battle was announced as long ago as March, 1907; it has taken two years to provide an apparatus which, under the name of "military telephone for the telephone detachments of the field artillery (*Armee fernsprecher für die Fernsprechertrupps der feldartillerie*), appears to be quite satisfactory. Communication can be set up by means of a double wire or a single wire and an earth. The apparatus, etc., is carried by mounted men in a sort

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of haversack like that used by cavalry patrols for carrying homing pigeons. The telephone is in the first place to connect the battery commanders with their units, the fire-observers, and the group staff. If it works satisfactorily, communication can then be set up between the group staffs and the regimental staffs. All the units already furnished are to devote themselves to the instruction of the telephonists. It is expected that the infantry will also soon be supplied with telephone equipment, as the trials made on a large scale at the Imperial Manœuvres last year were very satisfactory.

The Instruction of the 22nd August, 1908, for the Service of the "Train."—The new Instruction for the service of the *Train* approved on the 22nd August, 1908, has recently been published; it replaces and abrogates a similar confidential Instruction which was issued in 1896, and which was never made public, and it usefully completes the general directions in the chapter of the Field Service Regulations dealing with the same subject. The following is a *résumé* of the principal provisions:—

General.—"Every commanding officer must constantly keep in mind the great principle that the fitness of troops to fight can only be constantly maintained by supplies of all kinds being assured.

"It follows that officers and military employés, on whom falls the duty of maintaining supplies, must, without allowing themselves to be too closely tied by administrative limitations, largely use their own initiative to attain the object in view, which is to keep the troops in condition to fight."

Composition of the "Trains" of an Army Corps.—Apart from the fighting trains and regimental trains (*Bagagen*) which form an integral part of the staffs or of the army, the trains of army corps comprise:—

1. The ammunition columns under the orders of the commandant of the ammunition columns: four infantry and eight artillery ammunition columns (one of which is for the field howitzers), and in addition, if the army corps includes heavy artillery, eight foot artillery ammunition columns for heavy howitzers.

If the army corps, moreover, includes some mortar batteries, there will be in addition four foot artillery ammunition columns for the mortars.

2. The trains under the orders of the trains commandant.

   a. Two train battalions each comprising three subsistence supply columns (*Proviant-Kolonnen*) and three or four auxiliary wagon trains (*Fuhrpark-Kolonnen*), a remount establishment, and six field hospitals.

   b. Two field bakery columns.

   c. A bridging equipment.

The sanitary battalion, of which there is still some question in the regulations for the field sanitary service, is suppressed; in its place there are only the twelve field hospitals of the army corps and the three sanitary companies which form part of the divisions.

The Instruction next gives the composition of the ammunition columns and trains of the reserve division.

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The ammunition columns and trains are divided for the march into two *échelons*. The Instruction defines the duties and clearly lays down the respective positions of the commanders of the ammunition columns and trains, on the one hand, and of the leaders of the *échelons*, on the other. It is necessary particularly to note the new appointment of an officer superior to the commandant of the train.

Mobilisation.—The Instruction contains a certain number of very general provisions for the mobilisation of the ammunition columns and trains, naturally without entering into the detail of measures, which ought to remain secret. It indicates in particular the manner in which the different units are to be numbered, whether in each army corps or in conformity with a single series for the whole army, or on their assignment of the regiment charged to mobilise them.

Detailed Composition of the Units.—The Instruction gives the detailed composition in officers, men, horses, and vehicles of the units of every kind. There are two kinds of infantry ammunition columns having caissons drawn some by 6 some by 4 horses, 23 of the first, and 34 of the second. The field artillery ammunition columns have 21 caissons, the foot artillery columns 17; each of them is sub-divided into two demi-columns. The gas column for the balloonists has twelve 4-horse gas wagons. The sections of the subsistence supply convoys (*Proviant Kolonnen*) have 27 (old model) or 36 (new model) wagons drawn by 4 horses, and 36 2-horse wagons. The section of the auxiliary wagon train comprises 60 covered wagons.

The Instruction tables fix, moreover, for these units, as for all the other elements of the trains, the exact number of the cyclists and workmen of different professions who are to be attached to them, as well as the number of camp cooking utensils for common use (*Kameradschafts-Koch-apparaten*) which are to form part of their *matériel*.

Marches, Cantonments, and Bivouac, Fighting.—The Instruction further gives detailed provisions for the order of march, the length of the columns, and the bivouac formations (with diagrams) of all the train units. On the other hand, in regard to their employment and the positions to be taken before, during, and after battle, it only gives very summary and very general provisions.—*Revue Militaire des Armées Etrangères.*

Roumania.

The Strategic Position of Roumania.—Certain of the German and Austrian military papers have been devoting a good deal of attention to the probability of a war sooner or later breaking out between the two allied Powers and Russia. Quite recently both *Danzer's Armee Zeitung* and the *Allgemeine Armee Korrespondenz* were discussing the best line of advance for Austria in the event of the contingency referred to, having regard to the frontier conditions of the two countries. *Danzer's Armee Zeitung*, which is one of the principal Austro-Hungarian military organs, and by no means friendly to Italy, with which country the possibility of a war is also contemplated, returns again to the subject, this time to point out the important strategic position held by Roumania owing to her geographical position. Lying on the east of the Austro-Hungarian Monarchy and between the northern and southern Slavs, Roumania, thanks to her excellent Army, can move against either Russia or the Balkan States, as the case might be. Roughly speaking, the Roumanian Army

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would release five Austro-Hungarian army corps for use upon the Italian or Russian theatre of war. In order to make quite clear the full military value of Roumania, the writer proceeds to examine its position in regard to the Russian and Austro-Hungarian frontier territory, as well as the influence its mobile forces would have on operations in the Balkans.

As its contemporary in Berlin does, the *Armee Zeitung* holds that the Russian strategical concentration, having regard to the superior readiness for war of Germany and the Dual Monarchy, must, for the corps drawn from the north of the Poljesje, take place in the so-called Polish Trilateral, Warsaw-Ivangorod-Brest, and for the troops in South Russia, in the country adjacent to Kieff, Jitomir, and Berdischeff.

For the common offensive operations of the allies against Russia, the Polish Trilateral is the first objective. Unfortunately, the right flank of the lines of operation leading out of Galicia would be, the further the operations move to the northward, seriously threatened by an advance of the South Russian Corps by Kieff and the fortresses of Dubno-Rowno-Luck. This danger would become the more acute the longer the resistance of the Polish fortresses lasted. There can be no question of achieving any real success against the Russian army concentrated in the Trilateral unless the Austro-Hungarian army can occupy Dubno, Rowno, and Luck, so as to sufficiently secure its east flank and the rear of the army of operations.

The forces devoted to this duty would naturally not take part in the decisive actions of the main army; for practical purposes they would be lost. On the other hand, if the Roumanian army in Moldavia concentrated in readiness in the narrow tongue of territory which for some distance separates the Austro-Hungarian frontiers from the Russian, is entrusted with the duty by an offensive movement over Lipkany, Czernyi Ostrow into the country between Labun-Jitomir, of, in the first place, isolating the Volhynian Trilateral, and afterwards of covering the main operations, not only would a considerable accession of force have been secured for those operations, but the Russian reinforcements drawn from South Russia would be compelled, if they wished to reach Brest, to make a considerable detour either by Luninez (a little-used road) or by Minsk-Baranowitschi. It would be useless now to ponder over the further duties that might possibly devolve upon the Roumanian army in the further course of operations. The example we have given shows clearly enough of what extraordinary importance the Roumanian army would be in the case of war with Russia.

In the event of warlike complications in the Balkans, if Russia wished to take part, as she did in 1877-78 against Turkey, she could only pass her troops through the Roumanian territory, with its strong modern fortresses, at the cost of heavy fighting, while they would expose themselves to the further danger of being attacked by our troops debouching on their flank from the Carpathians. In view of this difficult situation, the Russians would be compelled to despatch the reinforcements for Bulgaria by sea to Varna.

Above all, we are justified in pointing out that the Roumanian Danube flotilla, in conjunction with ours, completely commands that river. This and the provisionally fortified bridge-head at Czernawoda enables the Roumanians to take the offensive against Bulgaria, and even against Servia, and there in the direction where most impression can be made to exercise a deciding influence upon the course of operations. By an offen-

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sive movement from Kalafat against Pirot, or from Corabia against Sophia, the Roumanian army can, in conjunction with troops advancing from South Hungary, owing to the advantages they both possess through their superior readiness for war, separate Servia from Bulgaria, or by an advance from the Dobrudska against Varna, or further against Tirnova-Sementi, paralyse any Bulgarian offensive movement against Turkey. The mere existence of the Roumanian army in this extremely favourable strategic situation will compel Bulgaria to take extraordinary measures in the rear of her army.

This brief sketch shows at least that the Roumanian alliance is a matter of the first importance, not only to Austria-Hungary, but also to Turkey, and so long as the Dual Monarchy is content to attach Roumania and Turkey to itself, the aspirations of the small Balkan States can never be realised. The object for which they are for ever striving can only be attained at the expense of Turkey and with the help of Russia and England. A recognition of this truth will teach the Young Turks, who hitherto have displayed a clear statesmanlike insight, in what direction their political friendships, for their own interests, will best lie.

The Roumanian Army can, as we have shown, take action either on the Russian or the eastern theatre of war. The true appreciation of its military value is for obvious reasons very necessary for us; details of organisation and bare figures are not of much use, but on the other hand, anything which throws light on the spirit that animates the troops, their discipline, and any special characteristics they may possess are of value, since many superficial observers have passed unfavourable criticisms upon them, which do not appear to be deserved.—*Danzer's Armee Zeitung.*

Reorganisation of the Field Artillery.—The field artillery has recently been reorganised. Each of the nine divisions and each of the four army corps had, up to the time of the recent changes, its field artillery regiment; but since the 1st of April of this year the regiments attached to the army corps have been suppressed, while the whole number of regiments of field artillery has been raised from 13 to 18, and each division has now attached to it a brigade of two regiments. In time of peace the battery is composed of the *personnel* and horses necessary for carrying out the battery firing exercises, so that the instruction of all the units can be completely and simultaneously carried out. There is no change in the group of horse artillery batteries, which remain as in the past under the direct orders of the commandant of the independent cavalry division. The mountain artillery also remains unchanged. The officers of the artillery celebrated the new organisation by a banquet held at the arsenal at Bucharest, the date chosen being the 28th of May, the anniversary of the day when the first shots were fired in the war of 1877 against the Turks.

The Budget and an Increase of the Infantry.—The Army Budget for 1909-10 amounts to 56,175,000 francs (£2,247,000), showing an increase of two million francs (£80,000) over that of last year. This increase has enabled the 9th Division to be completed by the creation of the 36th Regiment of Infantry and the 18th Infantry Brigade. The Army is thus now at its full strength of nine divisions, plus the independent cavalry division.

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The One-year Volunteers.—For a long time past the recruiting regulations have permitted of a reduced term of active service for young men, who, coming up to a certain standard of education, serve only one year instead of the usual two or three. This one-year service has up to the present been carried out in the different regiments. Last year, at the commencement of the training, these young men were amalgamated in a special school, which was attached to one of the Chasseur battalions. This year the school has been given the benefit of a more complete organisation, responding better to its object, which is to prepare the young men belonging to this category for the rank of sub-lieutenant in the Reserve for all arms, as well as certain non-commissioned officers (*plutonieri*) who fulfil certain conditions for the rank of sub-lieutenant in the Active Army. This preparation partakes of a practical character, so that when they leave the school the pupils will be competent to take up the duties of their rank.—*Revue Militaire Suisse.*

NAVAL AND MILITARY CALENDAR.

JUNE, 1909.

4th (F.) 50th Anniversary of the Battle of Magenta (Austrians defeated by the Allied French and Sardinians).

5th (Sat.) Presentation of Colours to 1st Batt. Norfolk Regiment by the King at Buckingham Palace.

„ „ Launch of 2nd Class cruiser *Köln* from the Germania Yard, Kiel, for Imperial German Navy.

9th (W.) H.M.S. *Superb* commissioned at Portsmouth.

12th (Sat) Review of Fleet at Spithead by Admiralty in presence of the Delegates to Imperial Press Conference.

„ „ Loss of Russian Submarine by collision with the battleship *Panteleimon* off Sebastopol.

17th (Th.) Mobilisation of Nucleus crew ships for Naval Manœuvres.

19th (Sat.) Presentation of Colours to 108 Territorial Units at Windsor Castle by H.M. the King.

24th (Th.) 50th Anniversary of the Battle of Solferino (Austrians defeated by the Allied French and Sardinians).

FOREIGN PERIODICALS

NAVAL.

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GERMANY.—*Marine Rundschau.* Berlin: July, 1909.—"21st June, 1909: 50th Year of Service of Grand Admiral von Koester." "The Battle of Gabbard Sand, 12th June, 1653." "The Right of Capture, according to the Conclusions of the London Conference." "Young Seamen." "Of the Variable Stars." "The Red Cross in the Navy." "Georg von Neumayer's Work for the German Navy." "On *Dreadnoughts:* Their Fire Control System and Comparative Strength in the North Sea."

ITALY.—*Rivista Marittima.* Rome: April, 1909.—"Obituary: The Catastrophe on Board the *Foca.*" "Armour and Projectiles." "The Land Operations in the Combined Manœuvres with the Navy (1908)." "An American Naval Station in the Gulf of Spezia." "A Notice of the Most Recent Polar Expeditions." *Supplement.*—"The Budgets of Foreign Navies during the Last Four Years."

PORTUGAL.—*Revista Portugueza, Colonial e Maritima.* Lisbon: April, 1909.—"Evil, and Remedies." "The Portuguese-German Mozambique Frontier" (*concluded*). "Colonial Problems" (*continued*). "The Origin of Great Britain."

Annaes do Club Militar Naval. Lisbon: May, 1909.—"The Instruction and Education of Officers of the Fleet." "Electric Engines." "Air Refrigerating Machines."

SPAIN.—*Revista General de Marina.* Madrid: June, 1909.—"Chart Table of Lieutenant A. Bolín y Cámara." "Something on Deviation." "Fire Control of Guns." "Physical Aptitude." "The Modern Marine." "On the Stability of Smokeless Powders."

UNITED STATES.—*Proceedings of the United States Naval Institute.* No. 2. Annapolis: June, 1909.—"The Navy and Coast Defence." "Some Remarks called forth by the able Essay of Pay-Inspector Mudd—and a Plea." "Protecting American Interests." "The Invention and Development of the Naval Telescope Sight." "American Admirals in the British Navy." "Through the Patagonian Channel and the Straits of Magellan." "Services of Commodore John Rodgers in the War of 1812 (1812-1815)." "The Torpedo Service of To-day and To-morrow." "Projectiles for Naval Guns." "The Baptism of Ships." "Notes on the Errors of Stadiometers." "To Find the Tactical Curves." "Notes Concerning the Visibility of Objects on a Clear, Dark Night at Sea."

MILITARY.

AUSTRIA-HUNGARY.—*Danzer's Armee-Zeitung.* Vienna: 3rd June, 1909.—"The Bosnian Adventure." "The Artillery at Aspern." "The Roumanian Army." "Military Report from Japan." 10th June.—"Fifty Years Ago." "Notes by the Arch-Duke Albrecht on the Battle of Solferino." 17th June.—"The Hero of San Martino." "My Wound on the 24th June, 1859." "Recollections of the Campaign of 1859." "The Italian Victory at San Martino." "In the Intrenchment at Naviglio." "The Roving Command of Major von Appel." 24th June.—"Our Last Knight of Theresa." "In Expectation of an Austro-Hungarian Fleet Programme." "The Two-Power Standard." "And the Fortress Artillery?" "The Roumanian Army."

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Kavalleristische Monatshefte. Vienna: June, 1909.—"The Cavalry at Aspern and Wagram." "Letters on the German Cavalry Instructions." "50th Anniversaries of Chiodino and Castel Venzago." "Observations on the Employment of the Cavalry in the German Kaiser Manœuvres on the 7th and 8th September, 1908." "The Bavarian Cavalry Regulations of a Hundred Years Ago." "Divisional Cavalry: Their Strength, Employment and Efficacy." "Cyphers." "The New Riding School at Paderborn." "Race Meetings." "The Remount Question in Switzerland." "The Fire Fight of the Cavalry: Two Tactical Problems by a K.u.K. Cavalry Officer."

BELGIUM. — *Bulletin de la Presse et de la Bibliographie Militaires.* Brussels: 15th May, 1909.—"The French Military Estimates for 1909" (*concluded*). "The Publication of Orders in Grand Units" (*continued*). "The Grand French Manœuvres in 1908." 31st May.—"The Publication of Orders in Grand Units" (*continued*). "The Grand French Manœuvres in 1908" (*continued*).

FRANCE.—*Journal des Sciences Militaires.* Paris: 1st June, 1909.—"Impressions of an Officer of the Russian General Staff on the Manœuvres of the Centre, 1908." "The March on Vienna" (*continued*). "Some Ideas on the Instruction of a Regiment of Infantry" (*continued*). "The Command of Troops: Duty of the General Staff" (*continued*). "Reserve Officers" (*continued*). "The Railways in French West Africa." 15th June.—"Some Ideas on the Instruction of a Regiment of Infantry" (*concluded*). "Impressions of an Officer of the Russian General Staff on the Manœuvres of the Centre" (*concluded*). "Reserve Officers" (*concluded*). "In Morocco: The Struggle for Power." "Study on the Intellectual Orientation of Company Officers." "Automobilism from the Military Point of View" (*concluded*).

Revue d'Infanterie. Paris: May, 1909.—"The New Manœuvre Regulations of the Russian Infantry." "Study of the Methods of Battle of the German Army." "System of Communication in the Tactical Domain in View of the Combination of the Efforts of Troops of all Arms" (*concluded*). "The Realities of the Field of Battle" (*continued*) "Practical Range-finder." "An Apparatus Intended to Deaden the Report of a Rifle."

Revue de Cavalerie. Paris: May-June, 1909.—"The Cavalry Yesterday and To-day." "Seydlitz" (*continued*). "Our Cavalry in the Next War (General von Bernhardi)" (*continued*). "Proposed Organisation of Sections of Machine Guns carried on Horseback in the Algerian Cavalry." "The Order Book of a Regiment of Cavalry (15th Chasseurs), 1814-1815" (*concluded*). "The Cavalry Complaint Book." "A Point of View of the Evolution of Some Ideas in the Cavalry in the XIXth and beginning of the XXth Century." "The Cossacks at Borodino (1812)."

Revue d'Artillerie. Paris: March, 1909.—"Reorganisation of the Artillery" (*concluded*). "Brass Cartridges—Brass Bullets—Electrolytic Copper" (*continued*). "Maximum Danger Zone."

Revue Militaire Générale. Paris: May, 1909.—"Communications in Battle." "Strategical Studies" (*concluded*). "Our Artillery and the Lessons of the Last War." "Study on the Events of the 16th August, 1870" (*concluded*).

Le Spectateur Militaire. Paris: 1st June, 1909.—"The Conscription of the Native Mussulmans in Algeria." "Journal of the Marches and Battles of the Infantry Regiment of Anjou, during the War of the Austrian Succession" (*continued*). "Service or Servitude" (*continued*). "Discipline, Crime, Military Justice" (*continued*). "Covering Manœuvres." 15th June.—"The Conscription of the Native Mussulmans in Algeria" (*continued*). "Discipline, Crime, Military Justice" (*continued*). "Journal of the Marches and Battles of the Infantry Regiment of Anjou, during the War of the Austrian Succession" (*continued*). "Service or Servitude" (*continued*). "Covering Manœuvres" (*continued*).

Revue d'Histoire. Paris: June, 1909.—"The *Rôle* of Pichegru at Mannheim (September, 1795)." "The Services at the Rear of the Grand Army in 1806-07." "The Second Passage of the Danube (4th-5th July, 1809)." "The War of 1870-71: The National Defence in the Provinces." "Military Justice in the Army of the Rhine and the Army of the Rhine-and-Moselle, 1792-1796." "Unpublished Letters of Napoleon I." "Unpublished Letter Dictated by Napoleon I. at St. Helena, 15th October, 1818."

Revue Militaire des Armées Etrangères. Paris: June, 1909.—"The Russo-Japanese War" (*continued*). "The Turkish Army in 1909." "The New Regulations for the German Foot Artillery."

GERMANY.—*Militär-Wochenblatt.* Berlin: 3rd June, 1909.—"A Burning Question of the Day?" "On the Tactical Demonstrative." "On the Kokotović Sight." "New Regulations for Entry into the Roumanian Higher War Schools." 5th June.—"The Battle of Düppel-Rübel, 28th of May, 1848." "On the Tactical Demonstrative" (*concluded*).

"Tattoo." "Exercises at War Strength." 8th June.—"The French Army." "Two Hundred and Fifty Years Ago." "The Elector Frederick William of Brandenburg in Jutland, 1865-9." "The Capture of the Fortress of Friedrichsöde and the Passage to the Fanoe Island by Fünen, 9th-11th, June, 1659." "The Battle of Düppel-Rübel on 28th May, 1848" (*concluded*). 10th June.—"Two Hundred and Fifty Years Ago" (*continued*). "Hermann Habenicht, a German Cartographer." "On the Brazilian Army." 12th June.—"Two Royal Saxon Infantry Regiments during their Two Hundred Years' Existence." "The Development of the Motor Airship, its Importance for Army and Fleet." "Two Hundred and Fifty Years Ago" (*concluded*). "Training of the Field Artillery Reservists at Jüterbog." 15th June.—"Ethical Education and Self-Education in the Army." "The Remounting and Training of the Swiss Cavalry." "The Development of the Airship, its Importance for the Army and Fleet" (*concluded*). "The Year's Report of the Chief of the Engineers of the U.S. Army." 17th June.—"The Commanding Generals of the German Army from 1889 to 1909." "The Battle Organisation of the Infantry." "Active Troops of the Second Line in Italy." 19th June.—"Observations on the New Cavalry Drill Regulations." "Opinions on the Training of Infantry for Outpost Duty." "The New French Commissariat Regulation." 22nd June.—"The Night Exercises of Infantry." "Albania." "Observations on the New Cavalry Drill Regulations" (*concluded*). "News from the Russian Army." 24th June.—"Prince Karl Günther von Schwarzburg-Sondershausen, Chief of the 3rd Thuringian Infantry Regiment No. 71." "History of the Electoral Bavarian Army under Karl Albrecht and Max III., 1726-1777." "Albania" (*concluded*). 26th June.—"Military Training of Youth." "In Remembrance of the Reorganisation a Hundred Years Ago of the Prussian Artillery." "German and French Cavalry Tactics." 29th June.—"On the British Army." "The Days of Poltava." "Military Training of Youth" (*concluded*). "What Steps is Switzerland taking to Provide Horses for the Artillery?"

Artilleristiche Monatshefte. Berlin: June, 1909.—"Ballistic Remarks." "Some Remarks on the Shooting Regulations of the Field Artillery in their Application to the Battlefield." "The Practical Value of the Artillery Lessons, 1904-05." "On the Shooting of the French Field Artillery." "Thoughts on the Training of the Field Artillery and its Employment during the Manœuvres." "More Light Field Howitzers.' "Observations on the Future Form of Fortress War." "Shooting of Field Artillery in the Darkness." "Foot Artillery Considerations, No. 17."

Jahrbücher für die Deutsche Armee und Marine. Berlin: June, 1909.—"New French Tactics." "Genius of a Commander of an Army and Luck." "Maxims for the Arrangement of Manœuvres." "Training of the People and Armed Strength." "Criticism of the Kaiser Manœuvres of 1908 by the French General Staff." "Fifty Years Ago."

Internationale Revue über die Gesamten Armeen und Flotten. Dresden: June, 1909.—"Military and Naval Intelligence of Austria-Hungary, Belgium, Bulgaria, France, Germany, Italy." *French Supplement No. 123.*—"The *Rôle* of the Russian Cavalry in May and June, 1904." "The Protection of Trans-Siberia during the Russo-Japanese War."

ITALY.—*Rivista di Artiglieria e Genio.* Rome: March, 1909.—"On Artillery *Matériel* with Differential Recoil." "Types of Structures Proposed for Regions Liable to Earthquake." "The Engineer Arm in Fortress Warfare." "Lathes Fitted with the "Automatic Revolving Tool Holder." "

Rivista Militare Italiana. Rome: 16th May, 1909.—"A Few Recapitulatory Notes on the Balkan Question." "About the Peace Conference" (*continued*). "Advanced Guards and their Duties." "The Formation and Work of a Provisional Mountain Battery at the Combined Naval and Military Manœuvres." "The Military Decadence of the Most Serene Republic of Venice" (*continued*). "A Plea for the Definite Settlement of the Problem of Our Non-Commissioned Officers." "Some Notes on Military Philosophy." "National Rifle Shooting and Military Preparation." "A Letter to the Editor." "General Criticisms on the Organisation of the Territory of a State."

SPAIN.—*Revista Técnica de Infantería y Caballería.* Madrid: 1st June, 1909.—"Marshal Soult in Portugal; Campaign of 1809" (*continued*). "Field Range-Finder" (*continued*). "Philosophic Reflections about War and Soldiers" (*continued*). "Examination of the French Frontier" (*continued*). "The New Tactics" (*continued*). "Mountain Artillery in Peace and War." 15th June.—"Marshal Soult in Portugal: Campaign of 1809" (*continued*). "Field Range-Finder" (*continued*). "Philosophic Reflections about War and Soldiers" (*continued*). "Examination of the French Frontier" (*continued*). "The New Tactics" (*continued*). "Report on the Musketry Course by Infantry First-Lieutenants at the Central Musketry School in 1907" (*continued*).

Revista Científico-Militar y Bibliotéca Militar. Barcelona: 25th June, 1909.—"The Public and the Army." "The Battle of San-de-pu." "Our Military Literature." "Mines in Siege Warfare."

SWITZERLAND.—*Revue Militaire Suisse.* Lausanne: June, 1909.—"Training Regulations for the Swiss Infantry." "The Schlayer Automobile Machine Gun." "The Service of the Train in Time of War." "The Sanitary Service of the First Line." "Our New Rifle."

UNITED STATES.—*Journal of the Military Service Institution.* Governor's Island, New York: July-August, 1909.—"Combined Naval and Military Operations." "To Commemorate the Services of the Regular Army in the Gettysburg Campaign." "Preparation for Defence." "Subsisting our Field Army in Case of War with a First-class Power." "Instruction for Scouts of Foot Artillery." "Observations during a Leave of Absence in Europe." "Proposed Organisation of Machine Gun Companies." "Military Use of the Automobile." "Soccer Football." "Types and Traditions of the Old Army." "Comment and Criticism."

Journal of the United States Artillery. Fort Monroe, Virginia: May-June, 1909.—"The Location and Tactical Employment of Searchlights in Coast Defence."—"An Ex-Confederate's Views of National Defence." "Infantry Fire in Battle." "Fire Control Testing Set at Fort McKinley, Maine."

NOTICES OF BOOKS

The Battle of Wavre and Grouchy's Retreat. By W. Hyde Kelly, R.E. London: John Murray.

The author has not been far wrong in stating of his very admirable little study that it deals with "an obscure part of the Waterloo campaign," for there are a very large number of officers in the Army who possess but a comparatively superficial knowledge of the operations herein described. The reasons given for the selection of this portion of the great campaign are all-sufficient, and soldiers will be grateful that Lieutenant Hyde Kelly was persuaded to expand the notes written for his own use into a book which must prove so interesting to his brother soldiers. The commencement of the war is briefly dealt with, but enough so to explain the reasons which prompted the selection of Grouchy for carrying out an operation of so vast importance, but in regard to the proper execution of which his limitations were very obvious. Never before had the Marshal exercised any really independent command, and no sooner had he received his appointment and the orders for his special mission than he began to question his instructions and to raise objections and difficulties. He was, however, practically the only man available. The Emperor had no alternative than to utilise his services; but his prospects of success in a difficult position—for which, moreover, he appears to have felt himself unfitted—were not improved by the jealousies of the subordinate commanders associated with him in the pursuit of the Prussians. How and where Grouchy found his enemy and the battle with Thielemann which resulted are described in detail, and full credit is given to the Prussian commander for the skill with which he held off the French during the critical hours of the afternoon and evening of the 18th June. From the close and well-reasoned account of Grouchy's retreat on Namur, and thence by devious ways upon Paris, is plainly to be seen how on more than one occasion his escape was due less to the excellence of his own arrangements than to the mistakes and hesitation of his pursuers, and students will feel that the author is right in not over-praising Grouchy's conduct of his retreat, which, although a skilful operation, can hardly be described as doing more than *somewhat* to retrieve his reputation as a general. Not the least important part of this book are the notes and comments to be found at the end; but indeed wherever throughout the author has given his own views and opinions, it will be conceded that his conclusions are eminently sound. Lieutenant Hyde Kelly's next military work will be sure of a cordial welcome.

The three maps supplied with this volume are clear, and well illustrate the operations described.

Recollections of a Life in the British Army. By General Sir Richard Harrison, G.C.B., C.M.G. London: Smith, Elder & Co. 1908.

It is matter for sincere congratulation that General Sir Richard Harrison was persuaded to expand what was originally intended for

purely family perusal into a volume which is certain to prove of real interest to the student of that period of military history contained within the latter portion of the nineteenth century. Sir Richard was so unfortunate as to be too late for the Crimean War, since he only landed at Scutari just as the armistice had been declared which resulted in peace; but he was lucky enough to be sent out to India on the outbreak of the Great Mutiny, landing in the country at the end of the year 1857, when the general situation had very materially improved. He was with Sir Colin Campbell at the final capture of Lucknow, during the hot weather campaign in Rohilcund, and in the final operations of the following cold weather in Oudh. General Harrison afterwards saw service in China under Sir Hope Grant, and then, returning to England, he was employed to the full in all the miscellaneous duties for which—more perhaps in those days than in more modern times—calls were made upon the officers of the Corps of Royal Engineers. He was also employed on special service connected with the inspection of fortifications, both in Canada and in the United States, and while travelling in the last-named country he was able to see something of the War of Secession, then at its height. Perhaps the most interesting of the General's "Recollections" are those wherein he recalls what he saw of the war in Zululand, where he was sent with the reinforcements hastily ordered thither when the news of the disaster at Isandlwana reached England. Sir Richard—then a Brevet Lieut.-Colonel—embarked in command of a company of Engineers, but on arrival at Durban he was appointed to the Headquarter Staff as Assistant Quartermaster-General. Also attached to the Staff of Lord Chelmsford was the young Prince Imperial, and a pathetic interest is attached to the complete story here told—perhaps for the first time in full detail—of all the tragic circumstances of the young Prince's last reconnaissance. At the time that he was killed some observations were made concerning General Harrison's connection with the circumstances of his death, but from what is now told it is very clear that every possible precaution was taken by Sir Richard, that the strictest orders had been issued regarding escorts, and that no possible blame or responsibility attached to any of the Staff for the lamentable and never-forgotten occurrence which moved England so deeply.

After the Zulu War had closed, General Harrison was appointed to the command of the troops in the Transvaal, and much that is here told of the events then pregnant with the future of that Colony will be new to the majority of our readers. From the time he reached home until the autumn of 1882 General Harrison was employed on the Staff at Aldershot; but when the Egyptian War began he was appointed Assistant Adjutant-General on the Line of Communications. Of the Nile Expedition he saw but little, being invalided from the front almost at its outset. As a Major-General, Sir Richard was Commandant of the Royal Military Academy, and also held the command of the Western District; his last appointment was Inspector-General of Fortifications.

It will be clear from the above that Sir Richard Harrison has seen a very great deal of war, and has done good work both as a Regimental and Staff Officer. Although the author of these "Recollections" writes mainly of his personal experiences, the book contains a large amount of important general matter, described with much literary skill, and illus-

trated by many interesting photographs; and this record of a particularly full, varied, and useful career is sure to be very welcome to the dwindling band of those who took part with Sir Richard Harrison in the scenes he so pleasantly and so modestly describes, as to that younger generation of soldiers who have had the privilege of serving under his command.

PRINCIPAL ADDITIONS TO LIBRARY DURING JUNE, 1909.

The Rise and Progress of the British Explosives Industry. 8vo. (Presented.) (Whittaker & Co.) London, 1909.

Les Armées du Rhin au début du Dirèctoire: (Sambre-et-Meuse—Rhin-et-Moselle.) Par le Capitaine H. BOURDEAU. *Publié sous la direction de la Section Historique de l'Etat-Major de l'Armée.* 8vo. (Henri Charles-Lavauzelle.) Paris, 1909.

A Manual of Signals for the Use of Signal Officers in the Field. By Brigadier-General A. J. MYER, U.S.A. 8vo. (Presented.) Washington, 1877.

Le Corps d'Observation des Alpes en 1815. By Le Capitaine HENNEQUIN. 8vo. 1s. 6d. (Henri Charles-Lavauzelle.) Paris, 1909.

Tsoushima. By Le Capitaine G. LAUR. 8vo. 2s. 6d. (Berger-Levrault et Cie.) Paris, 1909.

Etude sur la Campagne de 1859 en Italie. By Le Général F. SILVESTRE. 8vo. 2s. 6d. (Berger-Levrault et Cie.) Paris, 1909.

The French Conquest of Algeria. By Major G. B. LAURIE. 8vo. 6s. (Presented.) (Hugh Rees, Ltd.) London, 1909.

An Introduction to the History of Tactics, 1740-1905. By Captain A. F. BECKE. 8vo. 3s. 6d. (Presented.) (Hugh Rees, Ltd.) London, 1909.

Universal Service. By Colonel Sir C. M. Watson. Crown 8vo. 6d. (Presented.) (Hugh Rees, Ltd.) London, 1909.

La Campagne de 1793 à l'Armée du Nord et des Ardennes. Par le Capitaine v. DUPUIS, *Publié sous la direction de la Section Historique de l'Armée.* 2 vols. 8vo. 18s. (R. Chapelot et Cie.) Paris, 1906-09.

Self-Government in Canada, and how it was Achieved: The Story of Lord Durham's Report. By F. BRADSHAW. 8vo. 3s. 6d. (Presented.) P. S. King & Son.) London, 1909.

Handbook 8. Maráthas and Dekhani Musalmáns. By Major R. M. BETHAM. 8vo. (Presented.) Calcutta, 1908.

The Passing of the Great Fleet. By H. F. WYATT and L. G. H. HORTON-SMITH. 8vo. 8s. 6d. (Presented.) (Sampson Low, Marston & Co., Ltd.) London, 1909.

L'Artillerie de Campagne à tir rapide et à boucliers. By Le Capitaine J. CAMPANA. 8vo. 5s. 8d. (Henri Charles-Lavauzelle.) Paris, 1909.

The Fijians: A Study of Decay of Custom. By BASIL THOMSON. 8vo. 10s. (William Heinemann.) London, 1908.

Nelson, and other Naval Studies. By J. R. THURSFIELD. 8vo. 12s. (John Murray.) London, 1909.

The Inniskilling Dragoons—The Records of an Old Heavy Cavalry Regiment. By Major E. S. JACKSON. 8vo. 35s. (Arthur L. Humphreys.) London, 1909.

The Exile of St. Helena. By P. GONNARD. Translated from the French. 8vo. 10s. (William Heinemann.) London, 1909.

Turkey in Revolution. By C. R. BUXTON. 8vo. 7s. 6d. (T. Fisher Unwin.) London, 1909.

Rasplata (The Reckoning). By Commander W. SEMENOFF. Translated by "L. A. B." 8vo. 10s. 6d. (John Murray.) London, 1909.

Three Years' Sport in Mozambique. By G. VASSE. Translated from the French by R. and H. M. LYDEKKER. 8vo. 8s. 6d. (Sir Isaac Pitman & Sons, Ltd.) London, 1909.

RECENT PUBLICATIONS OF MILITARY INTEREST.

COMPILED BY THE GENERAL STAFF, WAR OFFICE.

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PREFATORY NOTE.

This Pamphlet will be issued quarterly, in April, July, October and January. Its purpose is to draw the attention of Officers to British and Foreign publications of Military interest which are likely to assist them in their professional work. Copies of the pamphlet will be distributed to the Headquarters of Commands, Educational Establishments, Units and Reference Libraries.

PART II. SECTION I. BOOKS (*continued*).

NOTE.—1. *When the price is not given in Part II., Section I., it is not known.*
2. *In Part II., Section I., books whose titles are given in foreign languages as well as in English, are published in those languages, and are not translated.*

ORGANIZATION AND ADMINISTRATION.

The Military Constitution of Germany (Deutsche Wehrverfassung). By Karl Endres. 133 pp. 12mo. Leipzig, 1908. Göschensche Verlag. 10d.

This book gives a concise summary of the laws regulating naval or military service in the German Empire. The first chapters explain how the present system developed, and gives an account of the military conventions between Prussia, on the one side, and Bavaria, Württemberg, Saxony, and the minor German States on the other. The majority of these conventions date from the period 1866-1871.

The next chapters deal with the obligations imposed on German subjects from the time when they first become liable to service until they are finally passed out of the *Landsturm*; the conditions under which the period of service may be either curtailed or postponed for a time; and the cases in which an exemption from service may be granted. The legal status and rights of persons undergoing military or naval service is also dealt with.

The last chapters deal with the special conditions created by mobilization, or a state of war; and the liabilities as regards service in the army or navy, of Germans who have become naturalized as subjects of a foreign Power.

The German Army in 1910 and the French Army after the recent Changes (L'armée allemande en 1910 et l'armée française d'après le projet du loi des cadres). By Capt. F. Culmann. 84 pp. 8vo. Paris, 1908. Berger-Levrault. 2/1.

The author compares the number of the different units of both armies, and notices particularly the numerical superiority of the Germans in cavalry and artillery.

He then sketches the principles of French and German organization, and the changes resulting from the new law regulating military establishments in France.

Comparison is made of the number of infantry battalions existing at different periods in France and Germany, and the steady continuity of German policy is contrasted with the constant changes in France.

Separate chapters deal in detail with the comparison of French and German infantry, cavalry, artillery, and the question of machine guns and pom-poms is then discussed.

The Army in Africa and the System of Two Years' Service (L'armée d'Afrique avec le service de deux ans). By General Luzeux. 57 pp. 8vo. Paris, 1908. Lavauzelle. 1/3.

This small book is divided into three chapters. The first deals with the situation as it is now, and the difficulties recently experienced in despatching a small number of troops to Morocco are pointed out.

In the second chapter compulsory service for natives is considered, and proposals are put forward regarding the difficulties arising from the absence of a census of the native tribes.

In the third chapter an estimate is made of the French troops necessary for the effective occupation of Algeria and Tunisia.

The Norwegian Army in the Field (Norska Armen i Falt). Officiel. 18 pp., with plates and sketches. 8vo. Stockholm, 1905. Norstedt.

This little book was published in Stockholm in 1905, when the relations between Norway and Sweden were much strained, owing to the secession of the former kingdom from the Union. The book gives a brief but clear description of the organization, establishments, tactics, and general characteristics of the Norwegian Army. There are several coloured plates showing the uniforms of the various corps, and a diagram showing the distances occupied by the units of a column on the line of march.

Copies of this book were distributed among the units of the Swedish Army.

The Supply Officer, his duties in the field and training in peace (Der Verpflegungsoffizier, sein Dienst im Felde und seine Vorbildung in Frieden). By Major-Gen. von Francois. 53 pp. 8vo. Berlin, 1909. Mittler. 1/3.

This is the third edition of this useful little book, and in it are embodied all the most recent instructions as regards supply from the "Field Service Regulations of 1908."

The characteristics necessary for a supply officer and his selection are discussed; the relationship between him and the officer commanding the troops is defined; and his duties during the mobilization period, during movement by train, in the concentration area and in the theatre of operations are broadly traced.

Matters concerning the use of field kitchens, loads of supply wagons, rations, forage, field bakeries and slaughtering of cattle are also entered into, and the last three pages are devoted to the question of training the supply officer in peace time.

Army Service Corps (Territorial Force) Guide. By Capt. J. Atkinson. 84 pp., with appendices. 8vo. London, 1908. Gale and Polden. 1/6.

A useful guide for officers and other ranks belonging to this branch of the Territorial Force. It contains information regarding appointment and enlistment, uniforms, promotion, training, pay, horse and stable management and various other miscellaneous matters. The appendices contain model orders for drivers when on duty, hygienic notes, forms required in a Territorial Army Service Corps Office, and books and forms required in a supply depôt.

The information is derived from various regulations and instructions and is presented in a handy form.

The Territorial Force. By Harold Baker. 298 pp. 8vo. London, 1909. Murray. 5/-.

After recounting the history of the evolution of the Territorial Force from the time of the Saxon Fyrd to the present day, the author, while pointing out that the official regulations must necessarily be the sole authority for matters of which they treat, presents here, in a compact and convenient form, full information of the principles of training command, and organization of the force, and of the provisions of the law, both civil and military, with regard thereto.

BOOKS OF REFERENCE.

Handbook for Army and Fleet (Handbuch für Heer und Flotte). Volume 1. Edited by Lieut.-General Georg von Alten. 911 pp., with numerous illustrations, plans, maps, and woodcuts in the text. 8vo. Berlin, 1909. Bong. 24/-.

A very useful and exhaustive military encyclopædia, from which a great deal of information is to be derived. In most cases the French and English equivalents for words or expressions are given. The English translations are perhaps a trifle

literal in places, for instance, "Abwerfen von Geschossen aus Ballons und Luftschiffen" is rendered by, "Throw down bullets from the balloon."

As this first volume practically only deals with the letter A, the whole work promises to be colossal.

Maps of European Countries useful for Military Purposes (Die militärisch wichtigsten Kartenwerke der Europäischen Staaten). Extracted from "Mitteilungen des Militärgeographischen Institutes." 238 pp., with 11 plates.

This is a useful summary of the principal maps in use in the various countries of Europe. The title of the map is followed in each case by a short paragraph giving particulars as to scale, style of execution, date of first issue, and method adopted for indicating differences of level.

Armies and Navies of all Nations: their Composition and Distribution in 1908 (Les armées et les flottes militaires de tous les états du monde. Composition et répartition en 1908). The French translation of a German publication. 84 pp. 8vo. Paris, 1908. Berger-Levrault. 10d.

A handy little book, but not sufficiently accurate to be of any real value.

TRAVEL AND TOPOGRAPHICAL.

Servia and Montenegro (Serbien und Montenegro). By Captain Anton Schwarz. 35 pp., with 2 maps. 8vo. Laibach, 1909. Kleinmayr and Bamberg. 1/8.

A short compact description of these two States, with especial reference to their armed forces and geographical characteristics from a military point of view.

The Khanate of Bokhara and its Present Condition (Страна Бешрарія). By D. I. Logofet. 239 pp. 8vo. St. Petersburg, 1909. Berezovski. 2/8.

A useful handbook, containing much interesting information about a little-known Russian dependency which lies to the north of Afghanistan between the Oxus and the Central Asian Railway. The author served for many years with the Frontier Guard in Russian Turkistan and may, therefore, rightly lay claim to a considerable personal acquaintance with his subject.

The work is dedicated to the Imperial Duma, in the hope of drawing attention to the deplorably backward state of a country, the development of which would, in the opinion of the author, prove a strategic and commercial gain to Russia.

The main idea which pervades the book is that the Bokharan question must be looked upon from a military, and not from a diplomatic point of view. If such were the case, instead of purposely retarding development in order to retain Bokhara in the condition of a rotten dependency, with a costly but farcical army, the Russian Government would recognise the wisdom of adding another rich and strategically important province to her dominions, and would seek to turn it to advantage by developing the resources, improving the means of communication, and utilising the three million inhabitants for strategic as well as commercial purposes.

The 21 chapters into which the work is divided deal with the history, administration, population, army, trade, resources, defences, and requirements of the Khanate.

The texts of various treaties and conventions are added in the form of appendices.

Round Afghanistan (Autour de l'Afghanistan). By Commandant de Bouillane de Lacoste with a Preface by M. Georges Leygues. 223 pp., with 120 illustrations and 5 maps. 4to. Paris, 1908. Hachette. 10/6.

The author, starting from Teheran in Persia, travelled completely round Afghanistan. In the course of his journey he passed through Russian Turkestan, Kashmir, the Punjab, Sind, Seistan and Persia, and although his experiences did not vary to any great extent from those of others who have visited these regions, the account of the route followed and the photographs with which the book is profusely illustrated, convey a graphic idea of the various countries and their inhabitants.

The preface to the book consists of an essay on the "Asiatic Problem." The writer briefly sketches the history of British and Russian influences in Central Asia from the seventeenth century to the present day; analyses the effects of the Russo-Japanese War upon Asia generally, and states his views regarding the position of the British in India.

In summing up the situation he states his conviction that Asia is awakening, and that throughout Persia, Afghanistan, Kashgaria and India a spirit of independence is beginning to show signs of life, which manifests itself in a growing hatred of foreigners and foreign institutions.

An appendix which contains "Notes on Baluchistan and the Seistan-Nushki Trade Route" discusses the question of a railway from India to Persia *viâ* Nushki.

Through Bush and Steppes from the Campo to the Shari (Durch Busch und Steppe vom Campo bis zum Shari). By Oscar Zimmermann. 238 pp., with numerous illustrations and one map. 8vo. Berlin, 1909. Mittler. 5/-.

The motive of the author is to describe his own experiences in the Cameroons and further to add a supplement to the history of the Protectorate Force. The Protectorate Force in the Cameroons was evolved from the previously existing Police Force. As Oscar Zimmermann was the only European who was present during the whole period of evolution, which lasted from 1892-1903—leaders and others constantly relieving each

other—he has been repeatedly urged, he says, to narrate his experiences. Hence this work, in which are also contained descriptions of life in the Cameroons, the customs of the natives, and the author's views on the manner in which the natives should be treated, subjects which he considers necessary for a true appreciation of the remainder of the text.

Oscar Zimmermann only came back on leave three times for short periods between 1892 and 1903. The many expeditions undertaken by sections of the Protectorate Force are narrated in an interesting manner. The book is readably written throughout and the illustrations are admirable.

The last chapter deals with the expedition under Lieutenant Pavel to Lake Chad; which was the first one to reach that spot from the West Coast and lasted exactly one year.

Benadir (Il Benadir). By Vico Mantegazza. 363 pp., with 3 maps and numerous illustrations. 8vo. Milan, 1908. Treves. 4/2.

An interesting book giving useful details regarding the system of government, political relationship with Abyssinia, and recent encounters with native tribes. The chief towns and main geographical features are described, and the information is thoroughly up to date.

MISCELLANEOUS.

Texts of the Peace Conferences at the Hague, 1899 and 1907 Edited by James Brown Scott. 447 pp. 8vo. London, 1908. Ginn. 10/6.

A useful book for the student of International Law, each text being conveniently printed with its English translation in parallel columns. There is an exhaustive index, which greatly adds to the value of the edition.

The Laws of War and The Two Hague Conferences (*1899-1907*) (Les Lois de la Guerre et Les Deux Conférences de la Haye). By Paul Boidin 280 pp. 8vo. Paris, 1908. Pedone. 6/6.

This book is divided into two parts, the first dealing with the general scope and limit of the application of international law to hostilities in the field, the second giving a synopsis of the achievements of the two Hague Conferences. The author rightly insists upon the practical nature of his subject and urges that its study and development should be the care of those versed in the actual national and international dealings of mankind in peace a d war rather than of theoretical jurists whose possibly stupendous knowledge is acquired from the bookshelves of a library. The chapters dealing with the application of international law to those States which were not represented at the Hague Conferences are provocative of earnest consideration. The utility of M. Boidin's interesting book would have been enhanced by the addition of an index.

The Elements of International Law. By George B. Davis, Judge Advocate-General, U.S. Army. 673 pp. Crown 8vo. New York and London, 1908. Harper & Bros. 12/6.

A well-arranged handbook for the student of International Law, being, however, rather a clear exposition of past and present facts than a guide to future possibilities.

The principles of International Law are, like the principles of strategy, practically invariable, and have undergone no change since Grotius published the first authoritative treatise on the subject in 1625. The application of these principles, however, like the tactical application of the principles of strategy, is subject to a continual and accelerated change, and the student who is interested in its growth can have no better handbook than our author's careful analysis. The definitions given are clear, though occasionally rather concise than comprehensive. The reader will find his labours lightened, his interest enhanced, and his attention stimulated by an admirable Table of Contents, an exhaustive Index and copious references to authorities. The texts of International Agreements, whether those merely recommended or finally received, are conveniently relegated to appendices.

Modern Conflicts (Dans la Bataille). By Stéphen Pichon, Foreign Minister. 314 pp. 8vo. Paris, 1908. Méricant. 1/8.

This volume contains a selection of public speeches and articles by the French Foreign Minister, M. Pichon. Among the subjects dealt with are the following:—

Alsace-Lorraine before Europe, reprinted from the *Nouvelle Revue* of 1894.

The *rôle* of France in Morocco, being a speech delivered in the French Chamber last year.

The diplomacy of the Church under the Third Republic.

The liberty of the Press.

National dignity.

Pekin and the siege of the Legations.

The formation of the Italy of to-day.

Text Book of Ballistics. Vol. I. (Schiesswesen). By Rudolph Kuhn. 130 pp. 8vo. 2nd Edition. Vienna, 1908. Seidel. 4/-.

This work is designed to form a reference book and an aid to the study of the ballistics of every kind of firearm, large and small, in as short a compass as possible.

In Volume I. the movement of the projectile inside and outside the barrel is discussed, and sections are added treating with the theory of ballistics sufficiently to enable the student to understand the construction of guns, etc., and to estimate correctly their capabilities.

It will be shown in subsequent volumes by descriptions and illustrations of the various firearms adopted by the Great Powers how far, in the case of each State, its weapons fulfil theoretical requirements.

The whole work is arranged in volumes, each volume dealing with a separate subject and being complete in itself.

Organization and Fire of Small Arms (Organisation et tir des armes à feu portatives). By Captain-Commandant of Artillery Edm. Haesen. 255 pp. 8vo. Paris, 1908. Berger-Levrault. 5/3.

The author of this book is a Belgian officer who is a professor at the School of Application for Artillery and Engineer Officers. Chapter I. gives a history of the evolution of small arms commencing with the smooth bore, passing from that to the rifle muzzle-loader and thence to the rifled breech-loader and the repeating rifle. Chapter II., which consists of some 60 pages, is devoted entirely to ballistics, while in Chapter III. the various parts of the cartridge are described in detail. In the fourth Chapter the writer deals minutely with the various parts of the rifle and compares the breech mechanism of the Mauser, Mannlicher and Krag-Jorgensen systems. Chapter V. contains some notes on automatic pistols and a comparison between them and revolvers. The last pages of the book are devoted to a discussion of the value of collective fire, the vulnerability of various formations, etc. At the end of the book are a number of tables giving ballistic and other details with reference to the 1889 Belgian rifle and the Browning automatic pistol, now in use in the Belgian Army.

The Franco-British Condominium in the New Hebrides (Le Condominium Franco-Anglais des Nouvelles Hébrides). By N. Politis. 150 pp. 8vo. Paris, 1908. Pedone. 3/6.

This book deals with the Franco-British Convention of October, 1906, establishing a system of dual control over the archipelago of the New-Hebrides; the author is of opinion that the arrangement is satisfactory and will work well, especially from his point of view, as the Convention is decidedly favourable to French interests.

The Government of South Africa. Compiled by South African Officials. Two volumes. 467 pp. Vol. 1; 423 pp. Vol. 2: with 8 maps and diagrams. 4to. South Africa, 1908. Central News Agency. 16/-.

The object of compiling this book was to educate the people of South Africa on the subject of Unification or Federation, and so to prepare the way for the Closer Union Convention. It has been arranged to supplement the information which the two volumes contain by publishing a monthly magazine.

Naval Administration and Warfare. By Captain A. T. Mahan, U.S.N. 409 pp., with map. 8vo. London, 1908. Sampson Low, Marston & Co. 7/6.

This volume comprises a number of essays which have appeared in various British and United States magazines during the last 20 years.

Though written on different subjects, and at wide intervals, they are connected by the thread of a plea for a broad policy of naval administration. The final essay is a temperate review of the gradual growth, and of the elasticity of the Monroe doctrine.

Financial Preparation for and Conduct of War (Finanzielle Kriegsbereitschaft und Kriegsführung). By Dr. J. Riesser. 104 pp. 8vo. Jena, 1909. Gustav Fischer. 2/5.

The author discusses the subject of finances in war under three main headings, namely:—Financial preparation for war, liquidation of finances for war purposes (Finanzielle Mobilmachung), and the financial conduct of war.

Under the first of these headings he discusses the probable cost of a future war. After reviewing the out payments made by Great Britain, France, Germany, Russia and Japan on account of the campaigns in South Africa, France (1870) and Manchuria, he estimates that a future war for Germany, on a basis of a mobilized force of 3,000,000 men, will cost her £900,000 per diem, or £324,000,000 per annum, and proceeds to investigate in detail the available capital in the Empire to meet this requirement. He calculates that £122,500,000 will be required during the first six weeks after declaration of war, and that to meet this demand floating money to the amount of £71,000,000 is available (including the famous £6,000,000 in gold in the Julius Tower at Spandau). The gold reserve of the Reichs Bank should, however, only be touched as a very last resort.

£138,000,000 might be covered altogether by an issue of banknotes, the Reichs Bank (besides the powers given to other banks) being empowered to issue notes to the extent of three times the value of the cash reserve (£41,000,000); and the amount of savings in the country could well guarantee an early expenditure of £175,000,000.

The author goes on to investigate the various means of taxation, *i.e.*, in order to find funds to carry on the war, and concludes that probably a third would have to be raised by new taxes, and two-thirds by the issue of Treasury bills and foreign loans.

In the course of his remarks he gives some interesting figures, together with references to authorities who have written on this most important subject. After stating that the cost of recent wars was, approximately:—

	£	£ per diem.
Franco-German War—		
To Germany	87,500,000	316,500
To France	76,480,000	312,000
Boer War, to England	211,256,000	220,000
Russo-Japanese War—		
To Russia	143,650,000	257,000
To Japan	121,400,000	217,000

He concludes that the next big land war will cost Germany probably 6s. per man under arms per diem. He does not take into consideration the fact that money spent on armaments and supplies in the home country does not represent a dead loss. His

conclusion is that Germany, in spite of her present rather anxious financial position will be well able, chiefly by reason of the huge amount (£3,750,000,000) of valuable securities, foreign and otherwise, held in the country, to afford to carry on a big war by land. A great deal will, however, depend on the capacity of her financial authorities to gauge the state of the markets and that of her own credit; and here he calls attention to the German financial incapacity prevalent during the war of 1870, and contrasts it with the skill with which both British and Russian loans were placed during their recent wars. The author does not discuss at all the finance involved in a naval war.

German Colonial Legislation. (Die deutsche Kolonial-gesetzgebung). By Dr. Kobner and Gerstmeyer. 536 pp. 8vo. Berlin, 1908. Mittler. 12/-.

This work is a collection of all the laws, ordinances, edicts and international agreements which have reference to the German Protectorates. The first part contains such legislation as refers to the German Colonies collectively and in the second part the individual Protectorates are dealt with separately and in turn. There is a good table of contents at the beginning of the book and an alphabetical index at the end, by means of which reference is greatly facilitated.

The Productive Forces of France (Les forces productives de la France). By various authors. 250 pp. 8vo. Paris, 1909. Felix Alcan. 3/-.

This volume consists of a series of five lectures given at the "Société des anciens élèves de l'école libre des sciences politiques."

The subjects of the different lectures are as follows:—

Agricultural produce and social problems.
The concentration of industry, and its influence on the lot of working classes.
The merchant service, and its relation to the productive forces of France.
The organization of trade outside France, and her commercial agents.
The new forces developing in North Africa.

The author attributes the decline of France in the latter half of the 19th century from the proud position she at one time held as the foremost nation in Europe, from the point of view of productiveness and of social and political development, to two causes. The lack of cheap coal in France debars her from engaging in many industries which are carried on profitably in other countries more favourably situated in this respect, while an ever-diminishing birth-rate deprives her alike of soldiers and workmen, and has robbed the country of her former enthusiasm and spirit of enterprise.

The author works out in detail the productive value of the various industries of France, and in the final lecture sketches the early days of French colonisation and shows how the vacillation and weakness of her statesmen hampered her first efforts in this direction.

The ethnography of North Africa is dealt with, and the fact that the French have had to face no general rising is attributed to the number of different races and tribes into which the natives are divided. Allusion is made to the alarming number of foreign European residents in French North Africa.

The Evolution of the Army. Part II.—The Recruiting of the Army (L'armée évolue. II.—Le Recrutement de l'Armée). By General Pédoya. 275 pp. 8vo. Paris, 1908. Chapelot. 3/-.

This book is the second part of a series of works on the evolution of the French Army. The author formerly commanded the XVth Army Corps and is a somewhat prolific writer on military subjects.

The book opens with a description of the state of affairs which prevailed in France before the introduction of obligatory personal service, and shows how the idea of professional armies received its death blow in France from the disasters of 1870. The various recruiting laws from 1870 to 1889 are examined, and it is shown how the chief flaw in all these enactments was the same, namely, that a large number of men obtained exemption from military service. The introduction of two years' service, however, has rendered it absolutely necessary to abolish exemptions of all kinds; but there are still some difficulties in applying this law which the writer explains, at the same time showing the changes which have come into force under the new recruiting law.

General Pédoya shows, moreover, how, in order to reduce the number of Frenchmen serving abroad, the native contingents in the colonies have been considerably increased.

There are also chapters concerning the effect of the new law on cavalry training, and on the military education of the soldier generally. The book concludes with an examination of the proposal to have only one year's service, which is followed by a statement of the reasons why two years' service has been adopted in France.

Anglo-Chinese Commerce and Diplomacy. By A. J. Sargent. 332 pp., with diagrams. 8vo. Oxford, 1907. Clarendon Press. 12/6.

The object of the book is to describe the relations of Great Britain with China solely in their bearing on the interests of commerce. The details of political changes and military operations are neglected, it is therefore of little interest to military readers. More than threequarters of the book is occupied by a discussion of what is practically ancient history, and the vast changes which have taken place in China during the present decade are barely mentioned.

Trial of Officers Concerned in the Surrender of Port Arthur (Дѣло о Сдачѣ Крѣпости Портъ-Артуръ). By V. A. Apushkin. Supplement to the "Razvyedchik." 472 pp. 8vo. St. Petersburg, 1908.

A full account of the proceedings of the Court Martial on the principal officers concerned in the surrender of Port Arthur to the Japanese in 1904.

The Power Transport Vehicle, without Rails, from a Military Point of View (Der gleislose Kraftwagen in Militärischer Beleuchtung). By W. Stavenhagen. 204 pp., with 11 plates. 8vo. Oldenburg, 1908. Stalling. 3/6.

This book is described in the preface as a scientific treatise, in popular form, suitable for the study of officers of all arms, and for civilians conversant with military matters.

The contents are arranged in nine parts:—

Part I. is an introduction to the whole subject. Part II. describes the general principles of motor engines and the main characteristics of the different types of motor. The question of roads is discussed and some interesting figures are given for the coefficients of friction on various natures of roadway. This part concludes with some formulæ for the cost of running, tabulated according to speed, type of motor, and nature of the fuel employed.

Part III. is a history of the development of mechanical transport in various countries.

Part IV. deals with the employment of mechanical transport for military purposes. The history of some of the great campaigns from 1812 to 1905 is reviewed with a view to showing what great assistance an up-to-date mechanical transport train could have rendered in these wars.

The author then goes on to discuss the future of motor transport; he considers that motor cars and motor bicycles will be of use for reconnaissance during the period of mobilisation, while mechanical transport trains will perform great service in relieving the strain on railways at certain points, and in carrying on the work of supply, towards the frontier, from the points beyond which it becomes unsafe to use the railways.

For purposes of coast defence motor transport will be exceptionally useful, since there is often no railway available to hurry troops to oppose a threatened landing.

In field operations the greatest service that motor transport can perform is, however, the shortening of the road spaces of the supply columns. On this subject the author gives us some interesting calculations.

It is, however, in siege warfare that the author expects the greatest advantage from mechanical transport. Esimates are given showing the number of tons of ammunition that will be expended daily by a modern siege train, a total far in excess of the capacity of the horse drawn vehicles available. Again, the materials for the construction of the siege batteries, which must be transported by night from railhead to the sites of the batteries, is estimated at 100 2-horse wagon-loads for one 4-gun battery. Hence for the construction of a line of batteries motor transport appears to be the only solution possible. It is suggested that motors on light rails should be used as tractors and that in this way 400 guns with their ammunition could be placed in battery in one night.

Part V. contains some useful tables and formulæ. Parts VI. and VII. are appendices. Part VIII. is a supplement relating the progress of mechanical transport in Germany and other countries from 1907 to 1908. Part IX. contains diagrams and photographs of military motor vehicles.

William II. (Wilhelm II.). By Adolph Stein. 124 pp. 8vo. Leipzig, 1909. Dieterichsche Verlagsbuchhandlung. 2/6.

The author adopts the *rôle* of champion to the Kaiser and endeavours throughout the book to show how, during the whole of the latter's 20 years' reign he has been misunderstood and maligned.

He draws a simile between the political situation in Germany in 1862 and the situation produced by the *Daily Telegraph* exposure in November of last year, but depicts William II. as standing alone against the Chancellor and Reichstag and not as was William I. supported by Bismarck.

The Kaiser is exonerated of the Kruger telegram, the high state of efficiency of the army is attributed to him, and his foresight in acquiring Heligoland is dwelt upon. He is painted as one of the most sagacious and level-headed monarchs ever known to history.

Dr. Jameson. By G. Seymour Fort. 312 pp., with 6 illustrations. 8vo. London, 1908. Hurst and Blackett. 10/6.

This is a most interesting account of the events that have, for the last 20 years, filled an exceptionally active and energetic career.

It was only in 1889 that Dr. Jameson, who had been practising in Kimberley since 1878, offered his services to his late friend and partner in Imperial interests, Mr. Cecil Rhodes, and undertook his most hazardous mission to Lobengula. Since then all his enterprises, with one well-known exception, have been crowned with success. Mr. Seymour Fort has brought clearly before us the patriotic and unselfish motives which have ever guided Dr. Jameson's actions, and in Chapter VI. the reader can glean for himself the reasons which forced him to undertake the raid at the time he did.

The Army Newspaper (*Weekly*). Pioneer Press, 13A, Cockspur Street. 1½d.

The object of this new periodical is to supply a need which has arisen with the spread of education in the Native Army in India.

It contains articles on military subjects suited to the rank and file, and may be of value to those who intend to return to India, to keep up their knowledge of the vernacular. It is at present printed in Urdu only, but, should a demand arise for an issue in the Nagri character, it is intended to meet it.

PART II.

SECTION II.

MAGAZINE ARTICLES.

(For abbreviations, *see* page 987.)

AERIAL NAVIGATION.

On the Action of Propellers and Aeroplanes. E., 1st January.

The Commercial Future of Flying Machines. Ec., 26th December.

The Voisin and the Wright Aeroplanes. E., 18th December.

The Problem of Flight. E., 18th December, 15th January, 12th February.

Some Anchored Tests of Aerial Propellers. By W. A. Scoble. E., 25th December.

Military Aerial Navigation in Germany. French General Staff. (To be continued.) R.M.E., December.

Airships. By Lieut.-Gen. v. Gortz. J.D.A.M., January.

On Dirigible Balloons. E., 5th March.

Progress in Aeronautics. By Major H. Bannerman Phillips. J.U.S.I., March.

Aerodonetics. By F. W. Lanchester. E., 19th and 26th February.

Aeroplanes. By Col. F. G. Stone. P.R.A.I., February.

The Use of Aeroplanes in War. Translated from the *Russki Invalid*. By Major A. E. Harrison. P.R.A.I., February.

Dirigible Balloons. Translated from *Journal des Sciences Militaires*. By Lieut. C. O. C. Hunt. P.RA.I., February.

The Motor Airship as an Instrument of War. Translated from *Jahrbücher für die Deutsche Armee und Marine*. By Capt. A. A. Koebel. P.R.A.I., February.

Aeronautical Motors and their Decrease in Weight. M.A.G., February.

Aerial Navigation in Modern Armies at the Beginning of 1909. I.R., p. 35. 1909.

ARTILLERY.

The Employment of the Russian Artillery in East Asia. By Lieut.-Gen. H. Rohne. A.M.B., December.

On the Reliability of Angular Formulæ for the Purpose of Calculating the Strength of Metal in Gun Tubes and Rifle Barrels. By Lieut.-Col. Heydenreich. A.M.B., December.

On the Reorganisation of the French Field Artillery. By Lieut.-Gen. H. Rohne. A.M.B., December.

Deports' Proposals as regards Gun Recoil Field Guns. By Maj.-Gen. Bahn. A.M.B., December.

Guns and Ammunition. (With a map.) By Lieut.-Col. Boissonnet. R.M.G., December.

The Artillery Combat according to the French and German Manœuvre Regulations. By Major Tournaire. R.d'A., October.

On the Construction of Guns for Use against Balloons. R.M.S., December.

Report on a Six Weeks' Instructional Tour in 1907. III. The Skoda Works in Pilsen. By Major A. Reutter. M.A.G., December.

The Question of "Deflection and Travel Correction" with Anti-torpedo Boat Guns. By Lieut.-Col. C. P. Martel. P.R.A.I., January.

Mechanical Time Fuses. By Major Goebel Düsseldorf. A.M.B., January.

The Mountings of More Modern High-angle Guns. K.T.Z., Heft 1.

A New Projectile. K.T.Z.,Heft 1.

Artillery Patrols. By an Artillery Officer. O.M.Z., January.

Howitzers in Coast Defence. By Capt. Schweeger. M.A.G., January.

Arms for Coast Defence, and the Independent Line of Sight. By Capt. Brandl. M.A.G., January.

High-angle Fire for Protection against Airships. E., 26th February.

The Scientific Basis of the New Lewis Depression Range-Finder. By Albert W. Erdman. U.S.A., January, February.

The Evacuation of Detraining Stations for Siege Parks. M.A.G., January.

Breech Blocks. E., 12th February.

Measurement of the Velocity of a Projectile, and the Resistance to the Air, by means of a Table of Range and Elevation. By Sir G. Greenhill. P.R.A.I., February.

Guns for Fighting Dirigible Balloons. Translated from A.M.B. By Capt. E. H. E. Collen. P.R.A.I., February.

Theory and Calculations as to Pneumatic Recoil Apparatus for Guns. M.A.G., February.

Influence of the Final Velocity on the Effect of the Capped Armour-Piercing Projectile. M.A.G., February.

Hydraulic Recoil in relation to High-angle Fire Guns; Automatic Breech-closing Apparatus. M.A.G., February.

Impressions from an Artillery Intelligence Course. O.M.Z., February.

The New Foot Artillery Regulations. I.R., p. 41. 1909.

Employment of the "Scissors Telescope" in the Artillery. K.T.Z., p. 79, 1909.

On Field Artillery Training. M.W.B. (I.), No. 28, 1909.

Experiences in the Employment of Field Artillery from a Fire Tactics point of view in Recent Wars outside Europe. By Major Seeger. J.D.A.M. (I.), 1909.

The Development of the French and German Q.F. Field Guns, and a comparison of their powers. By Major-General Bahn. M.W.B., Nos. 16 and 17, 1909.

The Artillery Question in France. M.W.B., No. 12, 1909.

French Views on the Employment of Artillery. By General von Rohne. M.W.B., No. 15, 1909.

Sea Coast Artillery Practice. By Major John W. Ruckman. U.S.A., January, February.

CAVALRY.

The *Rôle* of Cavalry in Future Wars. Conclusions drawn from the recent Army Manœuvres in the centre of France. (September, 1908). By a Cavalry Colonel. (Concluded.) J.S.M., 1st, 15th December.

The War Training of Cavalry. By Major-General Buxbaum. K.M., December.

The Cause and Effect of Shock Tactics. By Lieut.-Colonel Wenninger. (Conclusion.) K.M., December.

The Cavalry in the French Manœuvres of 1908. By Colonel Aubier. R.C., November.

Seydlitz. Editorial. (Continued.) R.C., November.

Cavalry Reconnaissance in all its various forms. Editorial. (Continued.) R.C., November.

The Herbert Cavalry Bridging Equipment. By Lieut.-Colonel Herbert. M.A.G., December.

The Feeding of the Troop Horse in India. By Colonel H. de B. de Lisle. C.J., January.

Cavalry in the Battle of Sandepu. K.M., January.

Notes on the Employment of Cavalry in the Rocky Country of the Balkans. K.M., January.

Our Summer Work. K.M., January.

The Equipment of Cavalry with better Firearms. K.M., January.

Considerations as to the Augmented Value of Cavalry through the Introduction of a better Firearm and of Machine Gun Sections. K.M., February.

Employment of Divisional Cavalry. K.M., February.

The Training of Cavalry for War. K.M., February.

Remount Breeding in Germany: The Mexican Cavalry. K.M., February.

DEFENCE: HOME AND IMPERIAL.

Is Invasion Possible? By Major-General F. S. Russell. N.C., January.

A National Army, from an Employer's Point of View. By Sir Benjamin Browne. N.D., January.

The Value of the Territorial Force. Q.R., January.

Defence of Harbours by Fortification. Brigadier-General R. F. Johnson. (Continued.) J.U.S.I., January, February.

Invasion Considered from the Naval Standpoint. By Master Mariner. C.R., February.

The Invasion of England from the English Point of View. Translated from German by Captain R. H. Anstruther. U.S.M., February.

A Labour Member's View of National Defence. By Will Thorne. N.D., March.

Training for Home Defence. By Colonel Alsager Pollock. N.D., March.

FORTIFICATION AND MILITARY TRAINING.

Experiments to determine the Strength of the Austro-Hungarian Bridging Equipment. (Continued.) By Lieutenant Valerian Maryanski. M.A.G., December, January.

Utilisation of the Experience gained by the Defence of Port Arthur for the Construction of Fortresses. By Lieutenant Frobenius. J.D.A.M., January.

A Combined Weapon and Entrenching Tool. By Captain F. R. Lee. P.U.S.I., January.

A Hasty Entrenching Tool. By Thakur. P.U.S.I., January.

The Preparation of Fortresses for Defence by Means of Subterranean Mines, in the Light of the Experiences of Port Arthur. By V. Yakovlev. Inj., November, December.

HISTORICAL.

A Military Retrospect (1907-1815), and a Surmise. By Lieutenant A. C. Taylor. A.M.S., No. 96.

A Summary of the Campaigns which led up to the Wilderness Campaign in 1864. By Captain J. W. O'Dowda. A.M.S., No. 97.

The Early Days of the John Company. By Malcolm Seton. N.D., January.

F. Hoenig and the Battle of Gravelotte. By Otto Herrmann. J.D.A.M., December.

Blücher's Crossing of the Rhine by Kaub on 1st January, 1814. M.W.M., 31st December.

Yorck as an Instructor of the Prussian Army. M.W.B., Supp., 1908, p. 453.

Sweden's Share in the Seven Years' War. M.W.B., Supp., 1908, p. 453.

The Charge of Somosierra on the 30th November, 1808. By Captain Hugo Kernchnawe. K.M., December.

The Observation Corps of the Alps in 1815. By Captain Hennequin. (Continued.) L.S.M., 1st and 15th December.

The Siege of Besançon by the Austrians in 1814. By Lieutenant Borrey. (To be continued.) L.S.M., 15th December.

An Incident in the Battle of Gravelotte. By General Lamiraux. L.S.M., 1st December.

The Capitulation of Baylen. By Paul Metzger. (Conclusion.) L.S.M., 1st December.

Reminiscences of a Captain of Cavalry (1851-1881). (With 2 portraits.) By Henri Choppin. (Continued.) R.C., November.

Montcalm at the Battle of Carillon (8th July, 1758). French General Staff. (To be continued.) R.H., December.

The Armies of the Rhine under the French Directorate. French General Staff. (Continued.) R.H., December.

The War of 1870-71. The Investment of Paris. French General Staff. (Continued.) R.H., December.

The Battle of Busaco (27th December, 1810). French General Staff. (To be continued.) R.H., December.

The "Dos de Mayo" of 1808 in Madrid. By Major-General J. C. Dalton. P.R.A.I., January.

Fathers of the Indian Cavalry—Lieut.-General Sir John Hearsay. By Colonel H. W. Pearse. C.J., January.

A Short Account of the Cavalry Work during the Operations of the Mohmand Field Force, 1908. By Colonel C. B. Unwin. C.J., January.

Russo-Japanese War. By Colonel W. H. Birkbeck. C.J., January.

General Sir John Moore. By Lieut.-General H. D. Hutchinson. J.U.S.I., January.

A Forgotten Hero. By Colonel G. J. Harcourt. J.U.S.I., January.

The Military Efforts of Prussia under Frederick the Great and those of the German Empire. By Captain Polmann. J.D.A.M., January.

The Treaty of Portsmouth. By General Kuropatkin. M.C., January.

The Diary of Colonel G. Massy. By Captain C C. R. Murphy. P.U.S.I., January.

The Battlefields of North Italy. By Lieut.-Colonel Hon. E. Noel. P.U.S.I., January.

The Siege of Port Arthur. By Major H. F. Thuillier. P.U.S.I., January.

The American Land Forces in the War of Secession, and in the War against Spain. By Captain Deutelmoser. V.T.H., Heft 1.

The Anglo-Indian Army from the Days of its Formation to the Present Time. By Captain Heuschler. V.T.H., Heft I.

The Fights of the English in Afghanistan and on the North-West Frontier of India. By Lieutenant Strzemieczny. V.T.H., Heft 1.

An Outline of the Franco-German War. By Captain F. W. Maycock. U.S.M., February.

The Battles of the Nivelle and the Nive. By Major G. W. Redway. U.S.M., February.

The Establishment of British Dominion in Uganda. By Henri Rolin. B.C.C., Nos. 10, 11, and 12, 1908.

Chang-chuang-tzu. (An account of the fighting on the 1st March, 1905, and the means adopted to fortify the position, with sketch maps and diagrams.) By Colonel Rosenschild-Paulin, 7th Rifle Regiment. V.S., January.

The 5th E.S. Rifle Regiment at Chin-chou and Port Arthur (with maps and sketches). By N. Tretyakov. V.S., January.

Reminiscences of the Siege of Port Arthur. By Lieutenant N. Podgurski. (Continued.) V.S., January.

The Work of the 4th Don Cossack Division in the Raid on Ying-kou. By N. Philimonov. V.S., December.

The Origin of the Crimean War. By Dr. Emil Daniels. P.J., Vol. 135, 1909.

Napoleon's Strategy in 1805 (Ulm) and 1809 (Ratisbon). M.W.B., 9th February.

The Social Characteristics of the Influence of Napoleon. By J. Diez. L.S.M., 1st, 15th January.

MEDICAL AND SANITARY.

Have Trypanosomes an Ultra-Microscopical Stage in their Life-History? By Col. Sir D. Bruce and Capt. H. Bateman. J.R.A.M., January.

Tuberculosis in the British Army, and its Prevention. By Lieut.-Col. R. J. Simpson. J.R.A.M., January.

Enteric Fever among the Troops in Bermuda. By Major C. F. Wanhill. J.R.A.M., January.

Lactic Acid Bacilli. By F. G. Bushnell and Major G. Dansey Browning. J.R.A.M., January.

The Extraction of Teeth. By Capt. S. C. Bowle. J.R.A.M., January.

A Method of Preventing Soil Contamination in Field Urinals. By Capt. R. Mackenzie Skinner. J.R.A.M., January.

The Removal of Sick and Wounded from the Battlefield. By Lieut.-Col. W. G. Macpherson. J.R.A.M., January.

The Hygiene of the Rank and File. By Oberleutnant O. Pransa. O.M.Z., December.

Antityphoid Inoculations and their Employment in the Army. By Med. Principal M. Vincent. A.M.P., December.

Treatment under Military Conditions of Inguinal Hernia. By Oberstabsarzt Doebbelin. D.M.Z., 20th November.

Treatment of Heart Disease amongst Soldiers by Carbonic Acid Baths. By Stabsarzt Hufnagel. D.M.Z., 20th November.

Origin and Condition of American Immigrants. By Med. Director M. Simons, U.S.N. J.A.M.S., December.

Medical Organization of the United States Army for Service with a Division. By Lieut. G. H. Richardson, U.S.A. (Medical Reserve Corps). J.A.M.S., December.

Co-operative Work of the Medical Services of the United States Government. By Dr. H. W. Austin. J.A.M.S., December.

The Transport of Wounded at Night in a Naked Rock-Soil Country. By Staff-Col. Dr. Taussig and Regimental Doctor Andauer. O.M.Z., January.

Preliminary Note on Experiments in connection with the Transmission of Tick Fever. By Brevet Lieut.-Col. W. B. Leishman. J.R.A.M., February.

Preliminary Note on the Use of Antityphoid Vaccine in the Treatment of Enteric Fever. By Capt. A. B. Smallman. J.R.A.M., February.

The Isolation of *Bacillus Typhosus* from Excreta. By Capt. H. B. Fawcus. J.R.A.M., February.

Protracted Infection in Enteric Fever, with Notes on a series of cases apparently caused by a "Carrier." By Major E. W. W. Cochrane. J.R.A.M., February.

Statistical Table of the Recent Results of Antityphoid Inoculation. By Brevet Lieut.-Col. W. B. Leishman. J.R.A.M., February.

Suggestions for the Physical Training of Officers. By Lieut.-Col. C. Richards, Med. Corps, U.S.A. J.M.S.I., January, February.

The Medical Department of the United States Army: Upon what lines should its much-needed reorganization be instituted? By Major C. F. Mason, Med. Corps. J.M.S.I., January, February.

The Sanitary Responsibility of the Line Officer. By Capt. F. T. Woodbury, Med. Corps, U.S.A. U.S.I., January.

Arrows and Arrow Poisons in Northern Nigeria. By Allan C. Parsons. B.M.J., 23rd January.

Preliminary Annual Report of the Health of the German Army for the years 1st October, 1906, to 30th September, 1907, and 1st October, 1907, to 30th September, 1908. D.M.Z., 20th January.

A Journey through Holland for the purpose of Studying its Army Medical Organization. By Oberstabsarzt Neuburger. D.M.Z., 20th January.

Recent Research Work on the Use and Abuse of Alcohol. By Fleet-Surgeon O. W. Andrews. J.R.A.M., February.

Notes on the Treatment of Cholera. By Capt. J. A. Balok and Lieut. A. Harper Napier. J.R.A.M., February.

The Collection and Treatment of Wounded Cavalry Soldiers. By Lieut.-Col. W. G. Macpherson. J.R.A.M., February.

Second Report of the Committee on the Physiological Effects of Food, Training, and Clothing on the Soldier. J.R.A.M., February.

MISCELLANEOUS.

The Soldier in Southern Nigeria. By Lieut. R. H. Rowe. U.S.M., January.

The Dynamic Quality of a Territorial Force. By Lord Esher. N.D., January.

The Situation in the Balkan Peninsula. By Militarist. N.D., January.

The Second Line Army from Month to Month. By Territorialist. N.D., January.

A Railway to India. By C. E. D. Black. N.C., January.

Range-finder Tests in America. E., 18th December.

Tactics and the Health of the Army, 1848-1908. By Field-Marshal Sir Evelyn Wood. J.R.A.M., January.

The Sjögren Automatic Military Rifle. E., 25th December.

Notes on Foodstuffs. By Major G. Conway Gordon. (To be continued.) A.S.C., January.

Cooking Boxes for Supply Purposes in Mountain Warfare. M.W.B., 17th December.

A Proposal for the Use of Vapour as a Means of Protection. M.W.B., 29th December.

The Armed Strength of Turkey in Europe. By Lieut. Seidel. M.W.B., 31st December.

The German War Budget for 1908. Editorial. J.S.M., 15th December.

The Use of the Ski in Foreign Armies. French General Staff. (Conclusion.) R.M.E., December.

Notes on Water Supply. By Capt. C. W. Singer. C.J., January.

A Ride in the Balkans during the Crisis. By Lieut. Bertrand Stewart. C.J., January.

The von Löbell Annual Report on Military Matters for 1907. Translated by Lieut.-Col. E. Gunter. J.U.S.I., January, February.

Rejuvenated Turkey and its Army. By Gen. Freiherr v. der Goltz. V.T.H., Heft 1.

The Commander and his Staff. By Capt. v. Hingst. V.T.H., Heft 1.

The Russo-Japanese War—Criticisms and Observations. Extracts from Japanese Military Literature after the War. (Continued.) O.M.Z., January.

Military Impressions of an Englishman on the Battlefields about Metz. M.W.B., 21st January.

Business Principles in Military Finance. By Capt. Mark Synge. P.U.S.I., January.

War at the Present Day. Reproduced from the Deutsche Revue. N.R., February.

The Use of the Ski in Foreign Armies. J.U.S.I., February.

The Defence Question in Denmark. By Ogier le Danois. J.U.S.I., March.

Britain's Value as an Ally. By Miles. J.U.S.I., March.

Diplomacy, Strategy and Tactics in the Year 1000 B.C. By Lieut. H. J. Pechell. J.U.S.I., March.

The Army in the Great War. By Sir Charles Dilke. N.D., March.

Legal Liabilities in the Territorial Force. By Harold Baker. N.D., March.

Professional Notes. U.S.A., January, February.

The Short Base Range-finder and its Principles of Construction. By H. Dennis Taylor. E., 12th February.

Machine Guns. M.A.G., February.

The Servian and Montenegrin Armies. O.M.Z., February.

Automatic Railway Brakes. M.W.B. (I.), No. 20, 1909.

Military Review of the Year 1908. I.R., Supp. 104, 1909.

The Danish Army—Proposed Bill for Re-organizing the Land Defences. M.W.B. (I.), No. 28, 1909.

Remarks on the Military Expeditions of France in Morocco. M.W.B. (I.), No. 26, 1909.

The Centenary of the Prussian War Office. M.W.B. (I.), No. 28, 1909.

MOTORS AND MOTOR TRACTION.

Further Development of the Hornsby Chain Track Type of Vehicle. A.S.C., January.

The Armoured Machine Gun Motor Cart. By Major-Gen. v. Schempff. T.D.A.M.

Military Notes. J.U.S.I., January.

60-Brake-Horse-power Tractor for Military Service. E., 5th March

Military Tractor Trials. E., 5th March.

25-Horse-power Tractor for Military Service. E., 5th March.

The Thorneycroft Tractor. E., 5th March.

Motor Mounted Infantry. By Capt. R. S. Walker. J.U.S.I., March.

ORGANIZATION AND ADMINISTRATION.

The Foundations of Reform. N.D., January.

The Objects and Manning of the General Staff. By Col. C. E. Callwell, C.B. N.D., January.

The Organization of the French Infantry and Artillery. A Discussion on this subject by various Noted Officers of the French Army. J.S.M., 1st, 15th December.

The Lines of Communication of the Grand Army in 1806-7. French General Staff. (Continued.) R.H., December.

The Mussulmans and Compulsory Service in Bosnia-Herzegovina. J.U.S.I., January.

The New Organization of the Regular Army and the Territorial Forces at Home. By Major G. F. MacMunn. P.U.S.I., January.

The Law Regarding Military Service in Holland and Belgium. (Continued.) L.B.M., 31st January.

The Supply of the Army in the War of 1904-5. By V. Nedzvyedski. I.J., January.

Reserve Officers. By Captain Coquet. (To be continued.) J.S.M., 1st February.

STRATEGICAL AND TACTICAL.

General Carl von Clausewitz on War. Translated by Miss Maguire. With Notes by T. Miller Maguire. U.S.M., January, February, March.

The Decisive Attack. By Capt. E. Buat. (To be continued.) J.S.M., 1st, 15th, December.

The Tactics of the Russian and Japanese Armies in the Manchurian War. (With 4 maps.) (Continued.) By Lieut.-Col. Janin. L.R.I., 15th December, 15th January.

The Imperial Japanese Manœuvres of 1907. (With 1 map.) Translated from the German by Major Painvin. L.R.I., 15th December.

To what Extent have the Conditions of Success in War been Modified since 1871? By General von Blume. (French translation from German by Major Painvin.) (Continued.) L.R.I., 15th December.

The Realities of the Battlefield. (2 maps.) By Major Grange. (Continued.) L.R.I., 15th December, 15th January.

Attacks without previous Preparation. (With 1 map.) By General Daudignac. R.M.G., December.

August 16th, 1870 (the Battle of Rezonville). By Capt. F. Canonne. (Continued.) R.M.G., December.

The General Character of the War in the Far East: the Losses in Manchuria and those in Wars of the Past. By Capt. F. Culmann. (To be continued.) R.M.G., December.

The Decisive Attack. By "E. G." (To be continued.) L.S.M., 15th December, 1st January.

Strategic Advanced Guards; or, Manœuvres of Covering Troops. By Col. Dumas. (Continued.) L.S.M., 15th December.

The Campaign in Morocco, and the Lessons of the African War. By Col. Sainte-Chapelle. (Continued.) R.C., November.

The Russo-Japanese War. French General Staff. (Continued.) R.M.E., December.

Tactical Studies of the Campaigns of 1806—Auerstedt. French General Staff. (Continued.) R.H., December.

Artillery from an Infantry Point of View. By Brig.-Gen. R. Haking. P.R.A.I., January.

Tactical Observation and the Transmission of Reports. By Brig.-Gen. E. H. Allenby. C.J., January.

The Combination of Shock with Dismounted Fire Action. By "Bengal Lancer." C.J., January.

Modern Artillery Tactics. By Lieut.-Gen. H. Rohne. A.M.B. January.

Infantry and Cavalry Machine Guns. By Major Vuilleumier. (To be continued.) R.M.S., January.

Theory and Practice with King Frederick, Napoleon, and Moltke. By Col. F. v. Freytag-Loringhoven. V.T.H., Heft 1.

Minor Tactics. (The Setting of Tactical Schemes.) M.W.B., No. 5.

What should be the Demeanour of Security Troops on the March and on Outpost towards the Enemy's Armoured Motors? M.W.B., 14th January.

Safety at Night in Frontier Warfare. By Capt. G. R. P. Wheatley. P.U.S.I., January.

Searchlights in Field Operations. By Capt. R. Walker. R.E.J., February.

Supply of Ammunition. By R. and McE. J.U.S.I., March.

Tactical Lessons of the Russo-Japanese War. Translated from the "Spectateur Militaire." By Major E. P. Smith. P.R.A.I., February.

Infantry Formations in the Attack from an Artilleryman's Point of View. By Major C. E. Budworth. P.R.A.I., February.

Montenegrin Conduct of War and Tactics. O.M.Z., February.

The Defence and Attack of Fortified Positions in the Field. By Major Fritsch. B.P.B.M., 15th, 31st January.

The Rôle of Cavalry in Reconnaissance. By Capt. Janet. J.S.M., 15th January, 1st February.

Reconnaissance and Observation. M.W.B., 9th February.
Tactical Employment of Searchlights. M.W.B., 11th, 13th, 16th February.
Notes on Observation in Position Warfare. M.W.B. (I.), No. 23, 1909.
The Counterstroke in Great Battles. M.W.B. (I.), No. 23, 1909.
The Attack and Defence of Fortified Positions. By Lieut.-Gen. von Görz. M.W.B. (I.), Nos. 17, 18, 1909.

TELEGRAPHS AND COMMUNICATIONS.

Post-Graduate Lectures on Radio-Telegraphy and Radio-Telephony. By Professor J. A. Fleming. E., 18th December.
Technical Means of Communication in the Army. N.M.B., 23rd January.

TRAINING AND EDUCATION.

The Training of Troops. By A. B. (Conclusion.) J.S.M., 1st December.
Suggestions regarding the Training of an Infantry Regiment. By Lieut.-Col. de Fonclare. J.S.M., 15th December, 15th January, 1st February.
Bayonet Fighting. By Capt. A. Quirot. L.S.M., 15th December.
The New German Manœuvre Regulations. French General Staff. R.M.E., December.
The Training of Territorial Horse Artillery. By Capt. Hon. G. F. Stanley. C.J., January.
School of Instruction for Mounted Infantry at Longmoor. By Major A. J. McNeill. C.J., January.
A System of Teaching Sketching in a Cavalry Regiment. By Lieut. F. G. Arkwright. C.J., January.
The Art of Command. By Col. von Spohn. J.U.S.I., January.
Field Service Musketry Practice by practically Untrained Men. Communicated by the Army School. O.M.Z., January.
The Military Instructor of To-day. By Lieut. Marceau. B.P.B.M., 15th, 31st January.
Infantry of the Territorial Force. By Namdaeh. J.U.S.I., March.
Physical Education and Training in Relation to National Defence. N.D., March.
Contributions by the Army School of Musketry. O.M.Z., February.
Shooting and Hitting. K.T.Z., p. 50, 1909.
Training for War. By Lieut.-Gen. Graf von Haslingen. J.D.A.M. (I.), 1909.

TRANSPORT.

The Past and Present Vehicles of the Army Service Corps. By Capt. H. C. Cumberlege. (Continued.) A.S.C., January.
With the Supply and Transport Corps in the Bazar Valley. By Capt. N. G. Anderson. A.S.C., January.
The Working of the Railways in the South African War. By W. Hyde Kelly. E., 15th January.

PART II.

SECTION III.

BOOKS, PAMPHLETS, ETC., WHICH HAVE BEEN DISTRIBUTED TO REFERENCE LIBRARIES.

Reorganization of Transport in the Russian Army, 1906-07.
Memorandum on Army Training, 1908.
Extracts from Annual Report of School of Gunnery, Horse, Field, and Heavy Artillery, 1908.
German Field Service Regulations, 1908.
German Manœuvre Regulations, 1908.
Papers used at Foreign Languages Examination held in January, 1909.
Report on the Examination of Officers in Subjects (*d*) to (*j*) for Promotion held in November, 1908.

ABBREVIATIONS.

Abbreviation.	Name of Newspaper or Periodical.		Price.	Place of Publication.
A.F.	Bulletin du Comité de l'Afrique française	M.	2 frs.	Paris.
A.F.H.	Archiv für Schiffs- und Tropen-Hygiene	½ M.	*	Leipzig.
A.H.M.	Annales d'hygiène et de médecine coloniale	M.	3 frs.	Paris.
A.J.	Artilleriskii Jurnal	M.	*	St. Petersburg.
A.M.B.	Artilleristische Monatshefte	M.	m. 2.50	Berlin.
A.M.P.	Archives de médecine et de pharmacie militaires...	M.	2 frs.	Paris.
A.M.S.	Proceedings of the Aldershot Military Society	...	/6	London.
A.N.R.	Army and Navy Register	W.	15 c.	Washington.
A.Q.R.	Imperial and Asiatic Quarterly Review	Q.	2/6	Woking.
A.S.C.	Army Service Corps Quarterly	Q.	2/-	Aldershot.
A.S.M.	Allgemeine sc weizerische Militärzeitung	W.	*	Basle.
B.Mag.	Blackwood's Magazine	M.	2/6	Edinburgh.
B.M.J.	British Medical Journal	W.	/6	London.
B.P.B.M.	Bulletin de la Presse et de la Bibliographie militaires. (Supplement to J.M.O.B.)	F.	*	Brussels.
B.S.C.	Bulletin international des sociétés de la croix rouge	M.	50 c.	Geneva.
C.J.	Cavalry Journal	Q.	2/6	London.
C. Mag.	Canadian Magazine	M.	25 c.	Toronto.
C.M.G.	Canadian Military Gazette	F.	10 c.	Montreal.
C.O.J.	Colonial Office Journal	Q.	1/6	London.
Con.	Der Continent	M.	m. 1.25	Berlin.
C.R.	Contemporary Review	M.	2/6	London.
D.M.S.	De militaire Spectator	M.	1 fr. 50	Haarlem.
D.M.Z.	Deutsche militärärztliche Zeitschrift ...	½ M.	*	Berlin.
E.	Engineering	W.	/6	London.
Ec.	Economist	W.	/8	London.
Emp. R.	Empire Review	M.	1/-	London.
E.R.	Edinburgh Review	Q.	6/-	London.
F.M.F.	Feuille militaire Fédérale	V.	40 c.	Berne.
F. Rev.	Fortnightly Review	M.	2/6	London.
I.J.	Intendanski Jurnal	M.	*	St. Petersburg.
I.M.T.	Indisch Militair Tijdschrift	M.	1 fr. 50	Batavia.
Inj.	Injeniernii Jurnal	M.	*	St. Petersburg.
I.R.	Internationale Revue (Armeen und Flotten)	M.	m. 3.25	Dresden.
J.A.M.S.	The Military Surgeon. Journal of the Assoc. of Military Surgeons	M.	35 c.	Carlisle, Penn.
J.A.S.	Journal of the African Society	Q.	6/-	London.
J.D.A.M.	Jahrbücher für die Deutsche Armee und Marine	M.	m. 2.50	Berlin.
J.M.O.B.	Journal militaire Officiel	M.	*	Brussels.
J.M.S.I.	Journal of the Military Service Institution	2 M.	50 c.	Governor's Island, N. York
J.M.S.S.	Journal of the Military Scientific Society (Russian)	Q.	1 Ro. 50kop.	St. Petersburg.
J.R.A.M.	Journal of the Royal Army Medical Corps	M.	2/-	London.
J.R.C.I.	Journal of the Royal Colonial Institute	M.	/6	London.
J.S.M.	Journal des Sciences militaires... ...	M.	*	Paris.
J.U.S.I.	Journal of the Royal United Service Institution	M.	2/-	London.

W., published weekly; F., fortnightly; M., monthly; Q., quarterly; V., at irregular intervals; A., annually.

* Periodicals which can only be purchased by subscription.

ABBREVIATIONS.—contd.

Abbreviation.	Name of Newspaper or Periodical.		Price.	Place of Publication.
J.U.S.I. (N.S.W.)	Journal of the United Service Institution of New South Wales	A.	*	Sydney.
K.M. ...	Kavalleristische Monatshefte	M.	k. 2.	Vienna.
K.T.Z. ..	Kriegstechnische Zeitschrift	M.	m.1.50	Berlin.
L.... ...	Lancet	W.	-/7	London.
L.A.F. ..	Comité de l'Asie française, Bulletin ...	M.	2.25frs	Paris.
L.B.M. ...	La Belgique militaire	W.	25 c.	Brussels.
L.R.I. ...	La Revue d'Infanterie	M.	2 frs.	Paris.
L.S.M. ...	Le Spectateur militaire	F.	2 frs.	Paris.
M.A.G. ...	Mittn. über Gegenstände des Art.- u. Genie-Wesens	M.	*	Vienna.
M. Art. ...	Memorial de Artillería	M.	*	Madrid
M.C. ...	McClure's Magazine	M.	25 c.	New York.
M.I.E. ...	Memorial de ingenieros del ejército ...	M.	*	Madrid.
M.R. ...	Marine-Rundschau	M.	m. 2.	Berlin.
M.W.B. ...	Militär-Wöchenblatt	½W.	20 pf.	Berlin.
N.C. ...	Nineteenth Century	M.	2/6	London.
N.D. ...	National Defence	M.	1/-	London.
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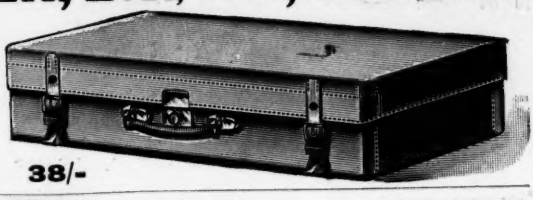

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